

Panasonic

Video Cassette Recorder

NV-L28B

Operating Instructions



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Printed in Japan

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Information for Your Safety

IMPORTANT

Your attention is drawn to the fact that recording of pre-recorded tapes or discs or other published or broadcast material may infringe copyright laws.

WARNING

TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS EQUIPMENT TO RAIN OR MOISTURE.

This apparatus was produced to BS800:1983.

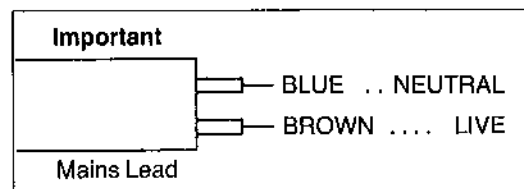
FOR YOUR SAFETY

■ DO NOT REMOVE OUTER COVER.

To prevent electric shock, do not remove cover. No user serviceable parts inside. Refer servicing to qualified service personnel.

■ AC MAINS LEAD CONNECTION

The wires in the mains lead of this apparatus are coloured in accordance with the following code.



As the colours of the wires in the mains lead may not correspond with the coloured markings identifying the terminals in your plug proceed as follows: The wire which is coloured BLUE must be connected to the terminal which is marked with the letter N or coloured BLACK. The wire which is coloured BROWN must be connected to the terminal which is marked with the letter L or coloured RED.

HQ (High Quality) Picture System

Video recorders carrying the HQ symbol mark feature the new VHS High Quality Picture System. This system assures complete compatibility with VTRs that use the conventional VHS system.

CAUTIONS

Please read these cautions before you operate this VTR.

Cassette Compartment Door

When first unpacking the unit, you may notice that the cassette compartment door is partially open. This condition is due to the operation of a safety device designed to protect the unit from vibration during shipment; it is not a malfunction. When the AC mains lead is connected to a mains outlet, the door will return to its original position.

Avoid Sudden Changes in Temperature

If the VTR is suddenly moved from a cold place to a warm place, moisture may form on the tape and inside the VTR.

Humidity and Dust

Avoid places where there is high humidity or much dust, which may cause damage to internal parts.

Do Not Obstruct the Ventilation Holes

The ventilation holes prevent abnormal increase in temperature. Do not block or cover these holes. Especially avoid covering the holes with soft materials such as cloth or paper.

Keep away from High Temperature

Keep the VTR away from extreme direct heat such as direct sunlight, heating radiators, or closed automobiles.

Keep Magnets away

Never bring a magnet or magnetized object near the VTR because it will adversely affect the performance of the VTR.

No Fingers or Other Objects Inside

Touching internal parts of this VTR is dangerous, and may cause serious damage to the VTR. Do not attempt to disassemble the VTR. There are no user serviceable parts inside.

Keep Water away

Keep the VTR away from flower vases, tubs, sinks, etc. CAUTION: If liquids are spilled into the VTR, serious damage could occur. If you spill any liquid into the VTR, consult qualified service personnel.

Cleaning the VTR

Wipe the VTR with a clean, dry cloth. Never use cleaning fluid, or other chemicals. And do not use compressed air to remove dust.

Stacking

Place the VTR in a horizontal position, and do not place anything heavy on it.

Lightning

To avoid damage by lightning, disconnect the aerial plug from the VTR.

Video Head Clogging

The video heads are the means by which the recorder places picture signals on the tape during recording, and reads picture signals from the tape during playback. If these heads become dirty and clogged from long use, the signals can no longer be recorded correctly, and the playback picture will be distorted accordingly. This is the case, for example, during the playback of a tape, the sound is reproduced normally, but no picture is seen, or the picture is greatly distorted. When such a symptom case occurs have the recorder checked by qualified service personnel.

Condensation may form in the VTR if:

- The VTR is in a room where the heater has just been turned on.
- The VTR is in a room with steam or high humidity.
- The VTR is brought from cold surroundings into a well-heated room.
- The VTR is suddenly brought from cool surroundings, such as an air-conditioned room or car, to a place which is hot and humid.

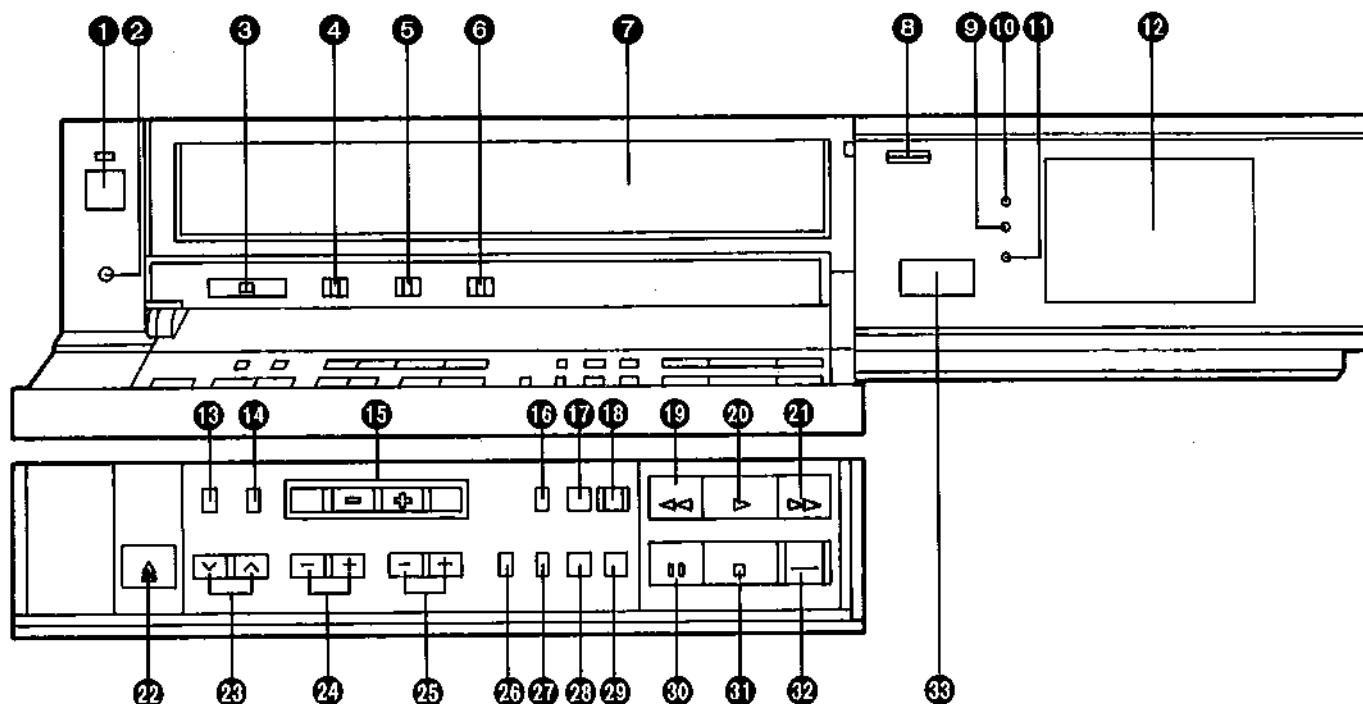
Note:

Do not operate the VTR for at least 1 hour if any of the above conditions occur.

This VTR does not incorporate a dew sensor.

CONTROLS AND COMPONENTS

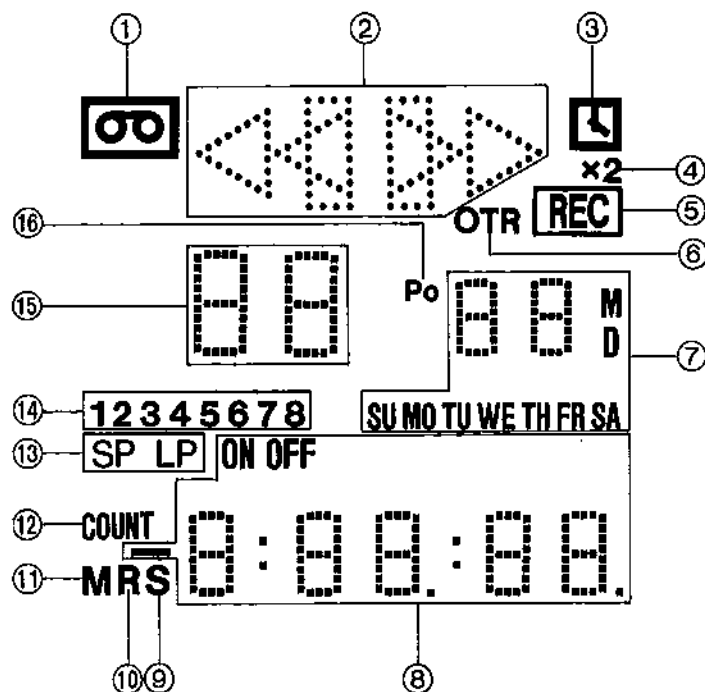
FRONT



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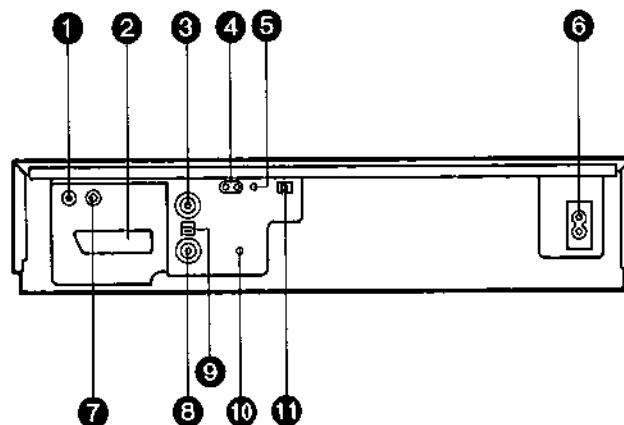
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Multi-Function Display



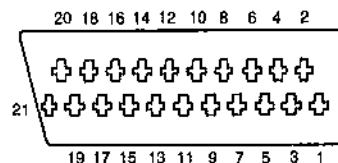
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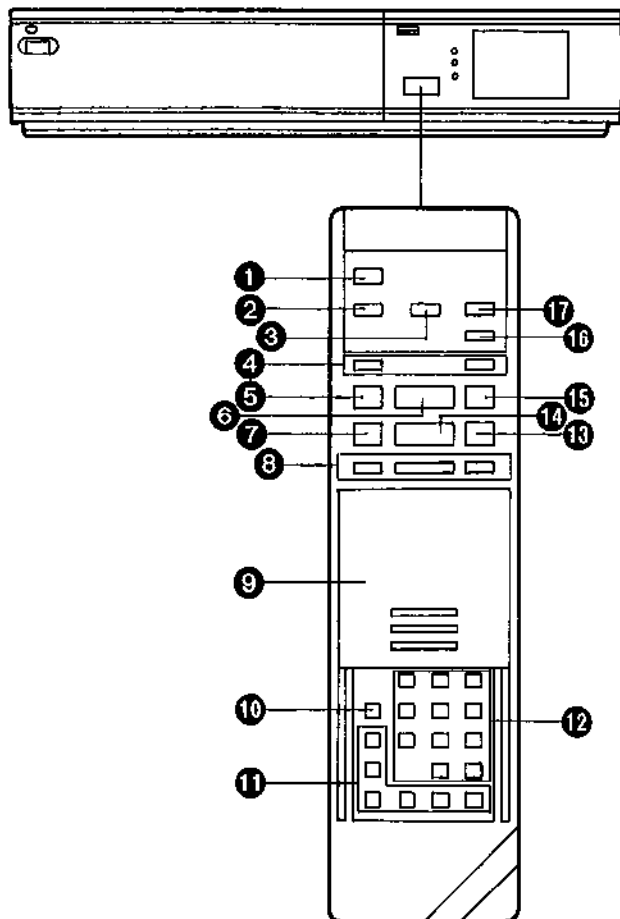
Connections of the AV Socket



1 AUDIO OUTPUT	11 No connection
2 AUDIO INPUT	12 No connection
3 AUDIO OUTPUT	13 No connection
4 AUDIO GND	14 No connection
5 No connection	15 No connection
6 AUDIO INPUT	16 No connection
7 No connection	17 VIDEO GND
8 SWITCHING VOLTAGE	18 No connection
9 No connection	19 VIDEO OUTPUT
10 No connection	20 VIDEO INPUT
	21 GND

INFRA-RED REMOTE CONTROLLER

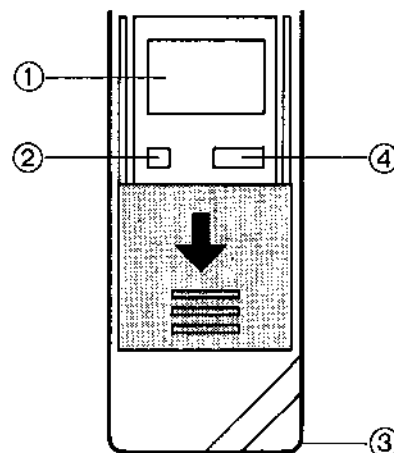
Part Number: VEQ0988



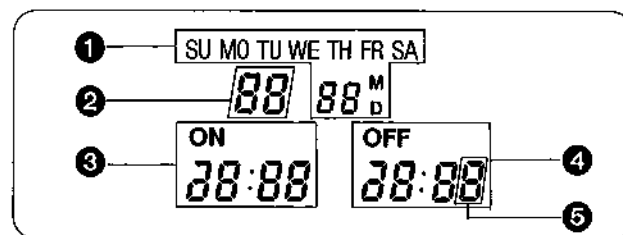
- ① VTR On/Off Button
- ② Clock/Counter Selector
- ③ Reset/Index Button
- ④ Record Buttons (●)
- ⑤ Pause/Still Button (||)
- ⑥ Stop Button (■)
- ⑦ Rewind ◀◀/Review ◀◀ Button
- ⑧ Slow Buttons
- ⑨ Mode Selector Cover
- ⑩ Time Search Button
- ⑪ Digital Function Buttons
- ⑫ Programme Position (Channel) Selector Buttons
- ⑬ Fast Forward ▶▶/Cue ▶▶ Button
- ⑭ Play/×2 Button (▶)
- ⑮ Still Advance Button (||▶)
- ⑯ Reverse Play Button
- ⑰ Memory/Repeat/Search Button

Use as Digital Scanner

Slide the Mode Selector Cover downward.



① Bar Code Reader Display



- ① Date Display
- ② Channel Display
- ③ Start Time Display
- ④ End Time Display
- ⑤ Check Indicator
- ② Digital Scanner On/Off Button
- ③ Bar Code Reading Section
- ④ Transmit Button

Note:

To use this unit as a Remote Controller, ensure that the LCD Display is off by pressing the Scanner On/Off Button once.

How to Operate the Remote Controller (Digital Scanner)

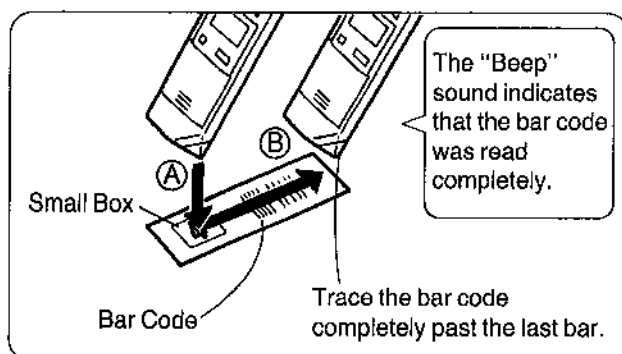
Press the Digital Scanner On/Off Button once to turn on.

- If no operation is performed for more than 25 seconds (4 minutes during setting of the clock time), the scanner will automatically switch over to the power-saving standby condition and the Display will go off. (In this case, if bar codes have already been read but not yet transmitted to the VTR, the data will be cancelled.)
- When the Display is off, press the button once to turn on.

Tracing the Bar Codes

(A) Place the Remote Controller on the Small Box.

(B) Trace the bar code quickly in the direction of the arrow.



- Treat the Programming Sheet with care. If the sheet gets dirty or scratched, the bar code reading may become impossible.
- Protect the Remote Controller from strong shocks and vibration. Keep it away from water and places with high temperature and humidity.
- If the bar code is traced slowly, it cannot be read correctly.
- When there is no "Beep" sound, the reading of the bar code is incomplete. Trace the bar code again.
- When using the Programming Sheet, put it on flat surface: Reading the bar codes while holding it in your hand or bending it, may result in incorrect operation.
- Do not deviate from the bar code, nor stop tracing halfway.

Power Source for the Remote Controller

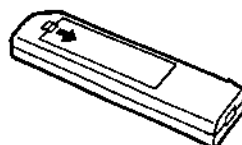
- The Remote Controller is powered by 4 IEC "R03" size batteries. The life of the batteries is about one year, however, it depends on the frequency of use. Inspect and if necessary, replace the batteries once a year.

CAUTION FOR BATTERY REPLACEMENT

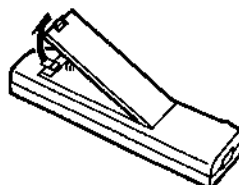
- Load the new batteries with their polarities (+ and -) aligned correctly.
- Do not apply heat to batteries, or internal short-circuit may occur.
- If you do not intend to use the Remote Controller for a long period of time, remove the batteries and store them in a cool and dry place.
- Remove spent batteries immediately and dispose of them.
- Do not use an old and a new batteries together. (Also never use an alkaline battery with a manganese battery.)

Load the batteries as follows:

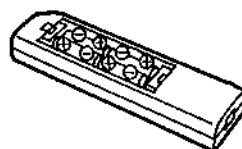
- 1 Push back the battery compartment locking lever.



- 2 Lift off the battery compartment lid.



- 3 Insert the batteries with their polarities aligned as indicated inside the battery compartment.



- 4 Replace the lid.

Note:

- The infra-red beam should be transmitted directly at the Infra-red Remote Control Receiver on the front of the VTR.
- Direct sunlight may interfere with the beam.
- The lightsensing angle of the Infra-red Remote Control Receiver in the VTR is about 30° for each side from the centre.
- The unit should be used within a range of about 7 meters from the front of the VTR.

Recommendation

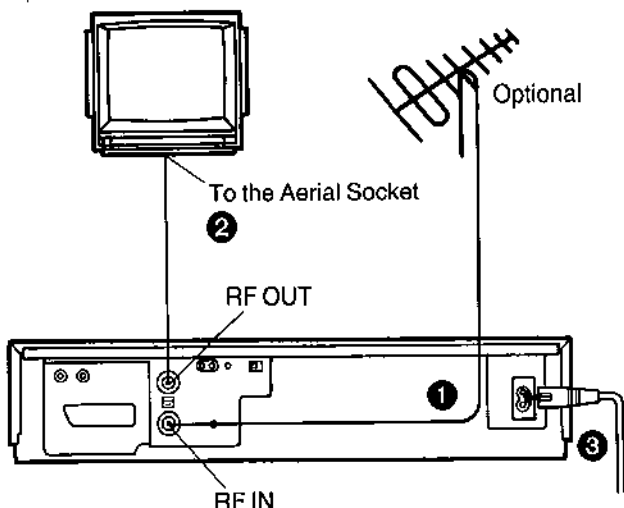
After the programming of timer recording(s) is completed, press the Digital Scanner On/Off Button so that the indications in the LCD Display disappear, in order to save battery power.

INSTALLATION

Consult your Panasonic dealer for advice about a suitable cable to use for connection to the AV Socket.

Connection to a TV Set without AV Socket

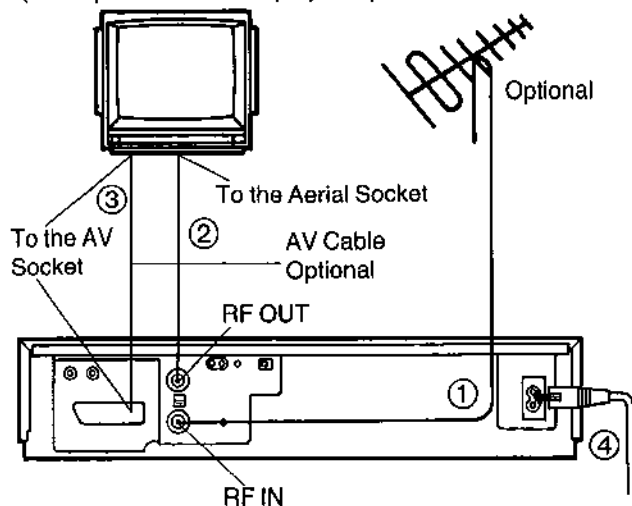
TV Set
(Select the video channel)



- ① Connect the external aerial to the RF Input Socket on the VTR.
- ② Connect the aerial terminal on your TV set to the RF Output Socket on the VTR with the supplied DIN-DIN Coaxial Cable.
- ③ Connect the AC Mains Lead to the AC In Socket of the VTR before connection to the mains outlet.

Connection to a TV Set with AV Socket

TV Set with AV Socket
(Set to position "AV" for playback)



- ① Connect the external aerial to the RF Input Socket on the VTR.
- ② Connect the aerial terminal on your TV set to the RF Output Socket on the VTR with the supplied DIN-DIN Coaxial Cable.
- ③ Connect the AV Socket on the VTR to the AV Socket on the TV set.
 - The AV Socket allows recording and playback of picture and sound. This connection can be used with TV sets which are also equipped with a AV Socket.
- ④ Connect the AC Mains Lead to the AC In Socket of the VTR before connection to the mains outlet.

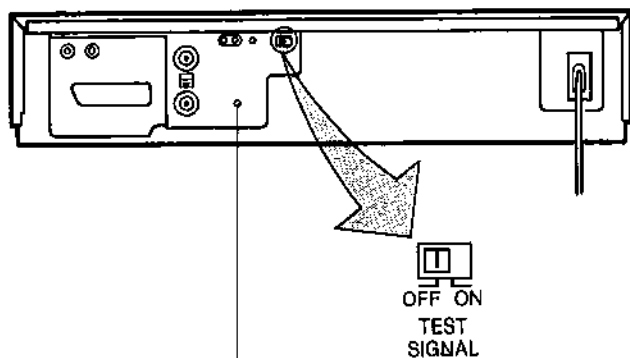
- If a AV cable is used for the VTR-to-TV connection and both the VTR and TV set have an "AV" position, set only one of them to "AV". If both are set to "AV", picture and sound distortion may appear with some types of TV sets.
- Some TV sets can automatically switch to the "AV" input mode when VTR playback starts via the AV cable. But some TV sets have to be switched manually to the AV mode.
- For recording from a TV's tuner via the AV cable, set the VTR to the "AV" mode.

RF Signal Level Switch:

Used to attenuate the reception of the UHF aerial signals. Normally set to "HIGH". If the signal is strong (stripes appear in the upper part of the picture), set to "LOW".

TUNING THE TV SET TO THE VIDEO PLAYBACK CHANNEL

The adjustments described on this page are not necessary, if the VTR is connected to the TV set via the AV socket.

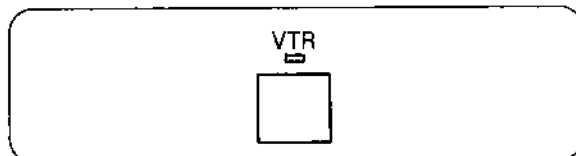


Video Playback Channel Adjustor
To change the video playback channel.

Note:

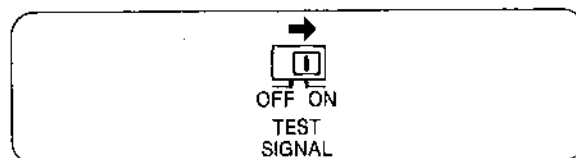
Adjustment should be done slowly and carefully using a small screwdriver. If in doubt, consult your authorised dealer for advice.

- 1 Turn the TV set on and select the programme position that is not occupied by any TV station.
- 2 Press the VTR On/Off Switch to turn the VTR On.
(FRONT SIDE)



- The corresponding indicator lights up.

- 3 Set the Test Signal Switch to "On".

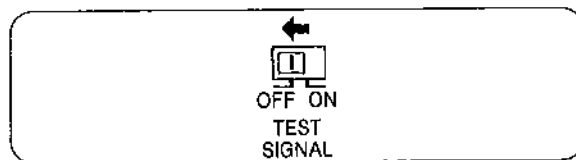


- 4 Tune the selected programme position of the TV set to UHF approx. channel 36.
Confirm on your TV set that the received test pattern is as shown.



- If UHF channel 36 is already occupied by a TV station in your area, the video playback channel can be changed between channel 32 to 40 on the back of the VTR by using a small screwdriver.

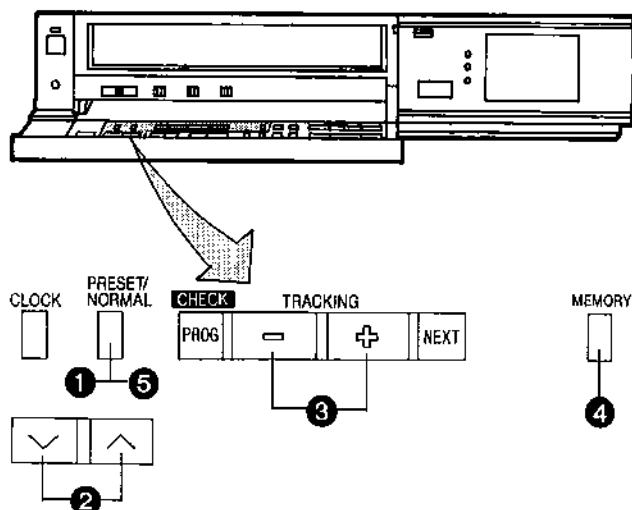
- 5 Set the Test Signal Switch to "Off". Your TV is now ready to receive the RF output signal from the VTR.



- When using the test pattern to tune the TV set to the video playback channel of the VTR, make sure that the two units are not connected via AV cable.

SETTING THE TUNER IN THE VTR

The tuner in the VTR makes it possible to receive TV broadcasts and to record these programmes without having to turn on the TV set. The frequency band of this model extends from UHF channel 21 to 69.



Preparation

- Turn the TV set on and select the programme position (channel) which you have tuned to the video playback channel.
- Press the VTR On/Off Switch to turn the VTR on.

Tuning Procedure

- 1 Press the Preset/Normal Button.
The indication on the Multi-Function Display changes from the clock indication to the position indication.
- 2 Press the Channel Up or Down Button to select a programme position (channel) which you want to tune to a TV station.

Display of the programme positions 1-99

16 Po 16

The tuner in the VTR can be preset with up to 99 stations.

- 3 Press the "+" or "-" Button.

16 Po 16

During the station search
(The position indication flashes on and off.)

Tuned condition

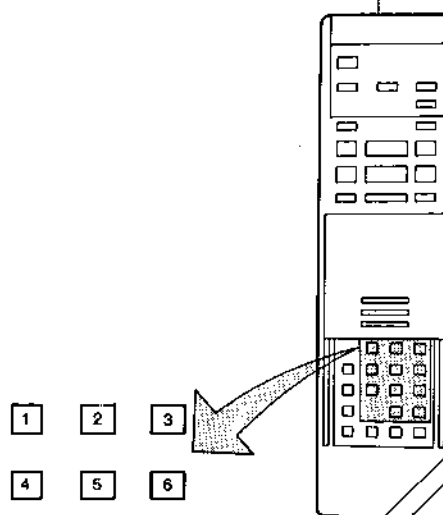
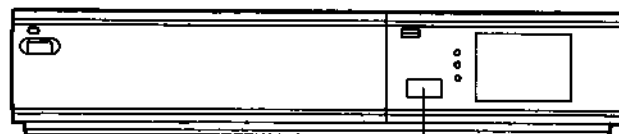
- When the tuning of the station is completed, the indication stops flashing.
- At every push of the "+" or "-" Button, the station will be tuned automatically.

- 4 Press the Memory Button.

Repeat steps 2-4 for each channel you want to tune to a station.

- 5 Press the Preset/Normal Button again.
The indication on the Multi-Function Display changes back to the previous indication.

How to Select the Programme Position (Channel) on the Remote Controller



1 2 3
4 5 6
7 8 9
0 +/-

select channel

press button

1-9 1 — 9 respective channel

10 +/- → 1 → 0

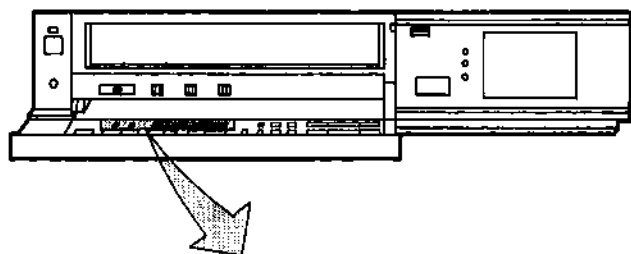
20 +/- → 2 → 0

11-99
for example 32 +/- → 3 → 2

If more than 5 seconds pass between the first, second and third push, the channel will not be changed normally.

SETTING THE CLOCK TO THE PRESENT TIME

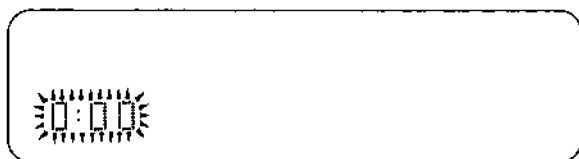
The built-in digital clock employs the 24-hour system.



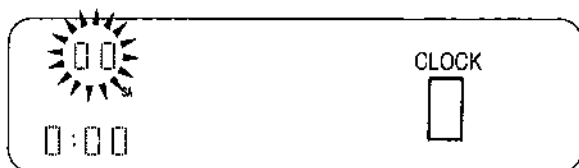
For Example: Set the clock for Sunday, October 10, 1999, 9:10

- Connect the VTR to the mains outlet.
- Press the VTR On/Off Switch to turn the VTR On.

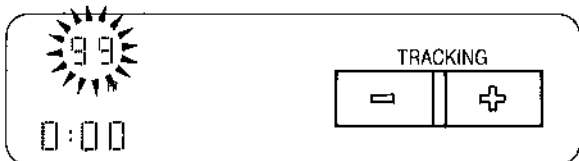
- 1 When connecting this VTR to the mains for the first time or after a long power failure, the time indications flash.



- 2 Press the Clock Button to start the date and time setting.

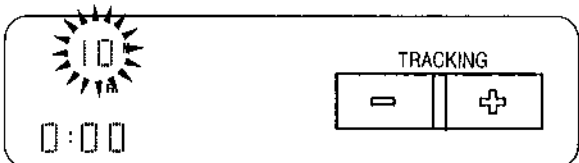


- 3 Press the "+" or "-" Button to set the year.



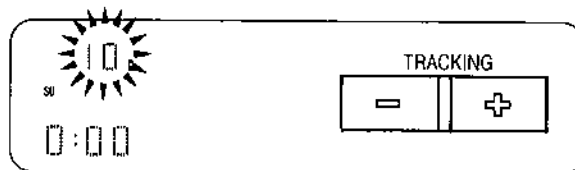
- 4 Press the Next Button.

- 5 Press the "+" or "-" Button to set the month.



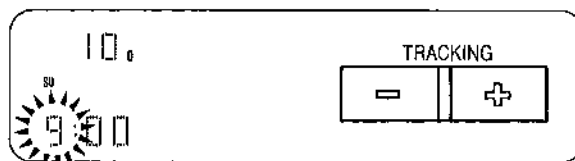
- 6 Press the Next Button.

- 7 Press the "+" or "-" Button to set the date.



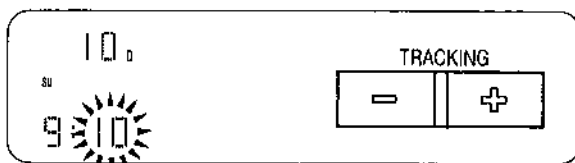
- 8 Press the Next Button.

- 9 Press the "+" or "-" Button to set the hour.



- 10 Press the Next Button.

- 11 Press the "+" or "-" Button to set the minute.



- 12 Press the Clock Button when the present time becomes exactly 9:10'00".



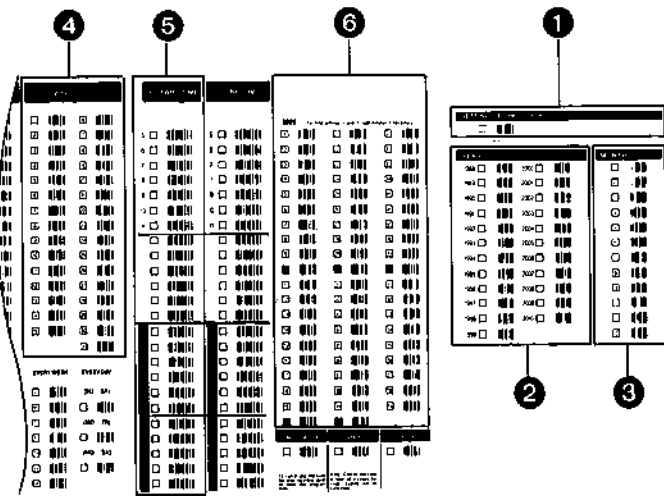
At every push of the Next Button, the flashing indication changes in the following order.

YEAR→MONTH→DATE→HOUR→MINUTE

- In case of a power failure, the timer back-up system maintains the clock operation and timer content for at least 30 seconds. However, depending on the charging time and the memory content, the back-up time may be considerably longer. However, it takes more than 60 minutes for the back-up circuit to become operational, after the VTR is connected to the mains.
- The Timer Record Function should be set to "Off", otherwise the VTR cannot be operated normally. In this case, the Timer Record Indicator "TR" will flash to warn you.
- During date setting, the corresponding day is simultaneously set.
- The clock/timer of the VTR is programmed with the calendar up to the end of the year 2087. The indications 88-99 are for the years 1988-1999. The indications 00-87 are for the years 2000-2087.

SETTING THE CLOCK TO THE PRESENT TIME (CONT'D)

Setting the Clock to the Present Time Using the Bar Codes



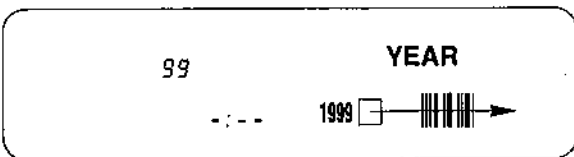
Preparation

- Slide down the Mode Selector Cover on the Remote Controller so that the Bar Code Reader Display can be seen.
- Press the Digital Scanner On/Off Button to turn on.

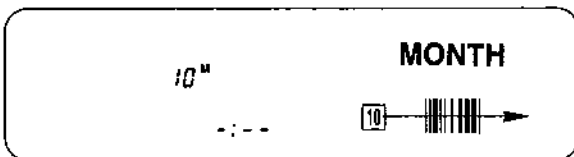
- 1 Trace the bar code "SETTING OF THE CLOCK".



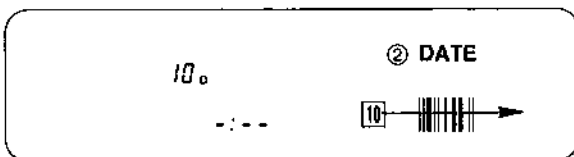
- 2 Trace the bar code for the year (YEAR).



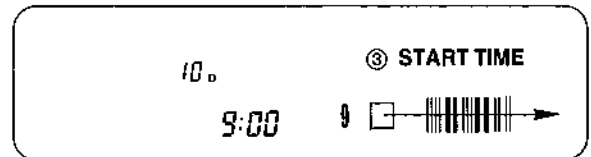
- 3 Trace the bar code for the month (MONTH).



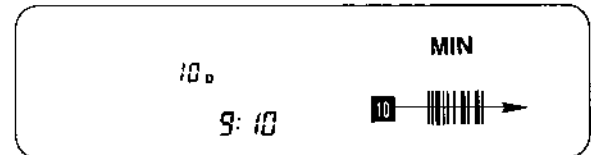
- 4 Trace the bar code for the day of the month (DATE).



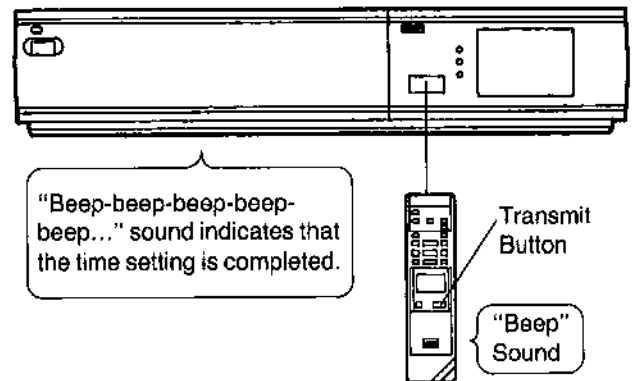
- 5 Trace the bar code for the hour (START TIME).



- 6 Trace the bar code for the minute (MIN).



- 7 Press the Transmit Button on the Remote Controller and then confirm that the time is displayed in the Multi-Function Display of the VTR.

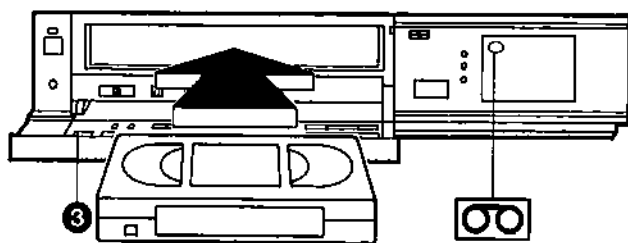


- 8 Press the Digital Scanner On/Off Button once to turn off.

- If the transmission was not received correctly, the "Beep-Beep, Beep-Beep" sound from the VTR will warn you. In this case, perform transmission again.
- If the Remote Controller is left with no operation performed for more than 4 minutes, it will automatically switch over to the power-saving standby condition and the lamp in the reading tip goes out. In this case, bar codes that have already been read (but not yet transmitted to the VTR) will be cancelled.
- The bar codes "SETTING OF THE CLOCK", "YEAR" and "MONTH" are located on page 3 of the Programming Sheet.
- The bar codes for "YEAR" setting on the Programming Sheet ranges from 1988 to 2010 only.

THE VIDEO CASSETTE

Inserting a Video Cassette (Auto Operation)



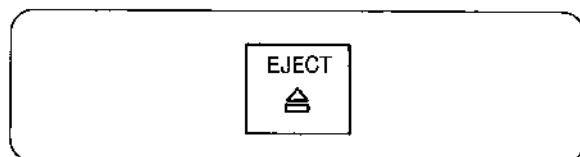
- 1 Insert the video cassette as shown. The VTR will be turned on automatically and the cassette will be automatically drawn into the VTR.
- 2 When a video cassette is inserted, the "⏮" mark will appear.

Notes:

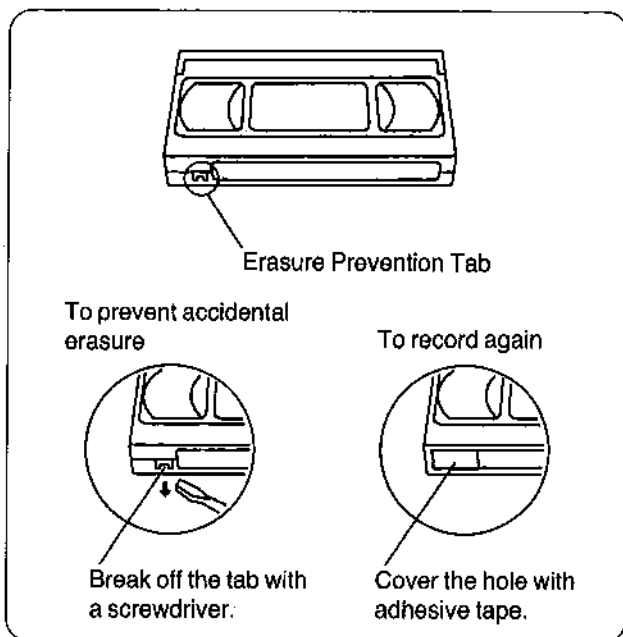
- When a video cassette with broken out erasure prevention tab (for example a pre-recorded tape) is inserted, playback will start immediately.
- Use **VHS** video cassette tapes only.

Removing a Video Cassette

- 3 Press the Eject Button (▲EJECT).



Simply press the Eject Button while the VTR is off with a cassette inside, the VTR turns itself on, ejects the cassette and turns itself off again.



AUTO OPERATION

Auto VTR On

When a cassette is inserted, the VTR turns itself on automatically.

Auto Cue and Play

When inserting a video cassette which has the erasure prevention tab removed playback will start automatically. If nothing is recorded on the part of the tape where playback is started, the VTR will automatically be in the Cue playback mode until the recorded part is reached, then it changes back to normal playback mode.

This applies only to previous unused tapes. Tapes which have been erased or re-recorded will not exhibit this feature.

Auto Rewind

When the tape reaches its end during recording (except OTR and timer recording) or playback, it will automatically be rewound to the beginning.

Auto Eject

When trying to record on a cassette whose tab is broken off, the cassette will automatically be ejected to warn that the recording cannot be made.

VTR-Off Eject

When the VTR is off, the inserted cassette can be ejected simply by pressing the Eject Button, and the VTR will automatically turn itself off again.

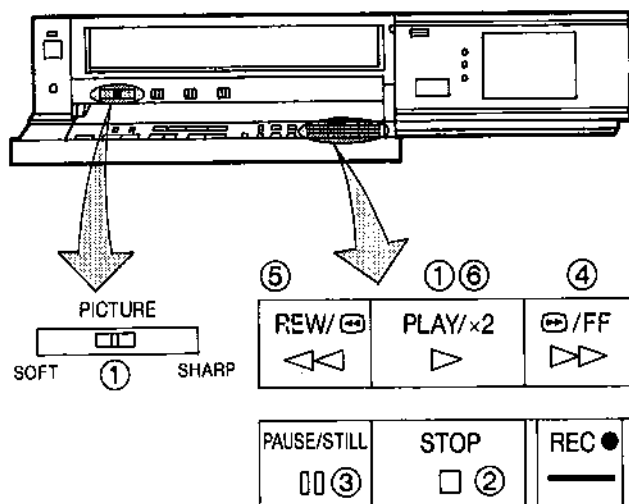
Rewind Auto Shut Off

When the VTR On/Off Button is pressed during rewinding, the cassette will be ejected as soon as the beginning of the tape is reached, and the VTR will turn itself off.

Auto Timer Recording Standby

When the Timer Record Button is pressed during rewinding, the VTR will switch over to the timer recording standby mode after the beginning of the tape is reached.

PLAYBACK



Note:

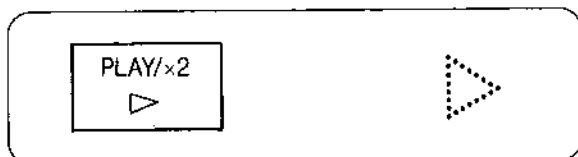
The playback picture for Cue, Review, Still, Reverse, Double Speed and Slow modes be in black and white in the "LP" mode.

Preparation

- Make sure that the Timer Record Function is set to "Off".
- Insert a recorded video cassette.
When a video cassette is already inside the VTR, press the VTR On/Off Switch to turn it on.
- Turn the TV set on and select the video playback channel.
- Set the Noise Filter/Edit Selector to "Off".
- Set the Digital Tracking Switch to "On".

1 Normal Playback

Press the Play/x2 Button (▶).



- Control the picture as you like with the Picture Sharpness Control (sharp or soft contours).

2 To Finish Playback

Press the Stop Button (■) to stop the playback.

3 Super Still Playback

When the VTR is in the playback mode, press the Pause/Still Button (||) to view a still-picture. To continue the normal playback, press this button again.



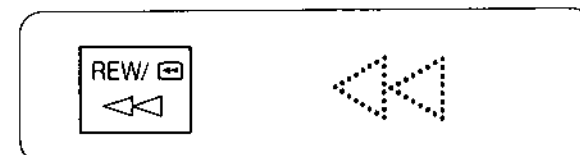
4 Cue Playback

When the Fast Forward ▶▶/Cue (▶▶) Button is kept pressed while the VTR is in the playback mode, the tape will be played back at high speed in forward direction.



5 Review Playback

When the Rewind ◀◀/Review (◀◀) Button is kept pressed while the VTR is in the playback mode, the tape will be played back at high speed in reverse direction.



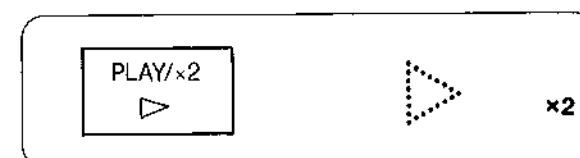
To make possible Cue or Review playback without having to keep the respective button pressed, first press the Memory/Repeat/Search Button on the Remote Controller so that the Search Indicator "S" appears in the Multi-Function Display, and then press the Fast Forward ▶▶/Cue (▶▶) Button or the Rewind ◀◀/Review (◀◀) Button.

To switch the VTR back to normal playback, press the Play/x2 Button (▶).

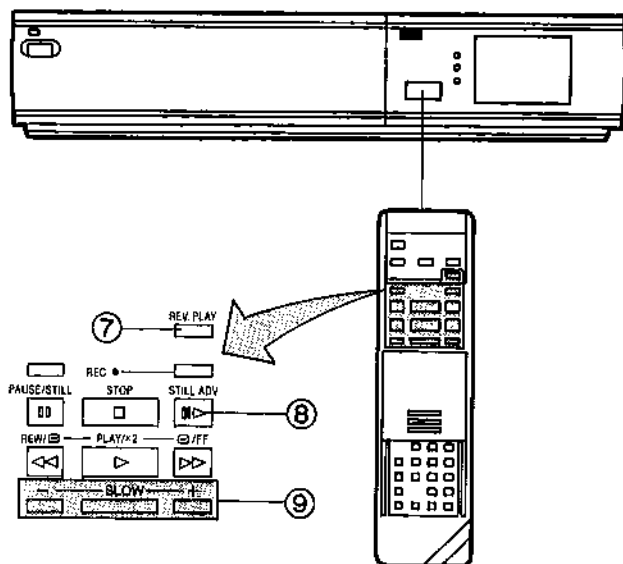
- When "S" Mark in the Multi-Function Display is lit, the Digital Function Buttons cannot be operated. If you want to use the Digital Function, press the Memory/Repeat/Search Button (the "S" Mark will disappear).
- When the search function is cancelled by pressing the Stop Button, the screen will be in the 3-Screen Multi Select mode (explained on page 29). In this case, press the Memory/Repeat/Search Button to cancel the 3-Screen Multi Select mode and return to the normal full-screen mode (the "S" Mark will disappear).
- When Cue or Review playback continues for more than 10 minutes, the VTR will automatically switch back to the normal playback mode.

6 Double Speed Playback

When the VTR is in the playback mode, press the Play/x2 Button to view the action at twice the normal playback speed. To change back to normal playback, press the Play/x2 Button again.



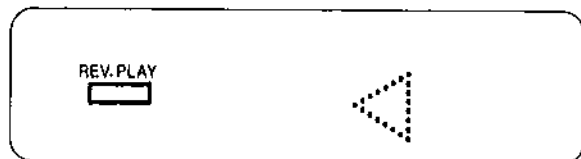
Using the Remote Controller



7 Reverse Playback

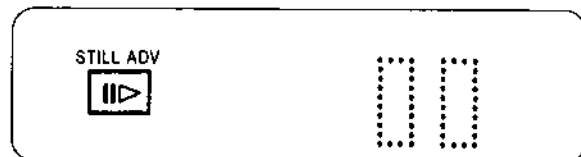
When the VTR is in the playback mode, switching over to Reverse Playback is possible by pressing the Reverse Playback Button.

- During Reverse Playback, noise bars may appear in the upper centre and lower centre parts of the picture.



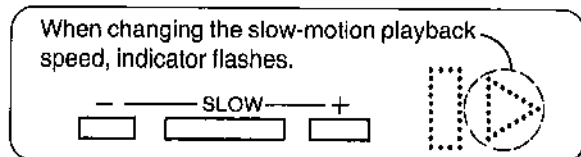
8 Super Still Advance Playback

Press the Still Advance Button (II>) while the VTR is in the still playback mode. Each time you press this button, the still-picture will advance one single field.



9 Super Fine Slow Playback*

During normal playback, the Slow-motion playback can be activated by pressing the Slow Button. The slow-motion playback speed can then be varied by using the Slow "+" or "-" Button.



- Press the Play/x2 Button (▶) to continue the normal playback.
- If the Slow playback operation continues for more than 5 minutes, the VTR automatically switches over to the stop mode.
- While playing back a tape in the Super Still or Super Fine Slow playback mode on a TV set equipped with an automatic vertical hold control, the picture may shake vertically. In this case, set the TV set's vertical hold (Auto/Manual) selector to the "Manual" position, and adjust the vertical hold control.

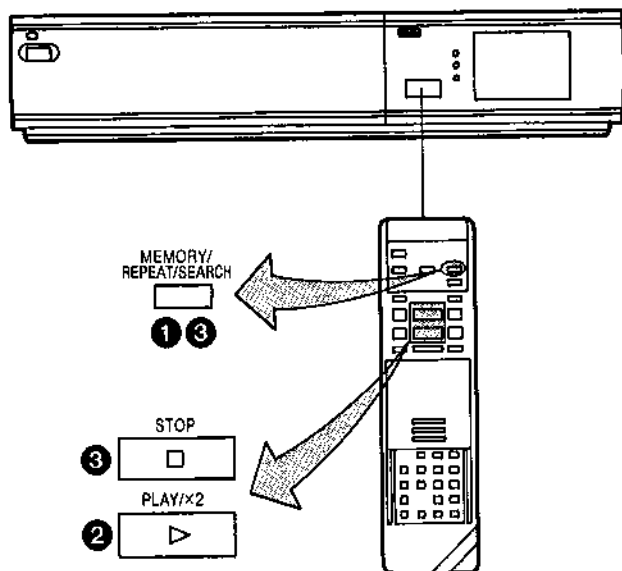
Slow Tracking Control

- When noise bars appear during Super Still, Super Still Advance or Super Fine Slow playback, switch over to Slow playback and adjust with the Tracking (+) or (-) Button to reduce the noise bars.
- It may not be possible to eliminate the noise bars completely.

- The sound will be played back only during normal playback.
- If you leave the VTR in the Still and Slow playback mode for more than 5 minutes, the VTR will automatically switch over to the Stop mode to protect the tape and the video heads.
- Noise which takes the form of horizontal bars appears on the TV in the Cue and Review playback modes. This is not an indication of a malfunction.
- When the picture rolls vertically in the Cue or Review mode, adjust the vertical hold control on the TV set.
- Immediately after starting Cue or Review playback, the picture may be distorted. Also, when these modes are cancelled, some momentary picture distortion may occur. However, this is not due to any malfunction.
- In "LP" mode only:
 1. During any playback mode other than normal playback, the picture will become distorted and black and white. This is not indication of malfunction.
 2. When playing back a tape which was recorded on another VTR, it may be necessary to adjust the Tracking Control. In some cases the picture quality may still be inferior. This is due to limitation of format.

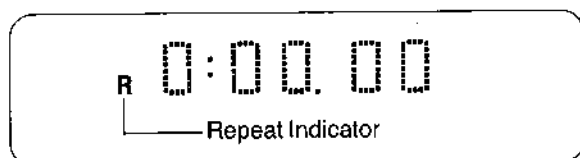
PLAYBACK (CONT'D)

Repeat Playback

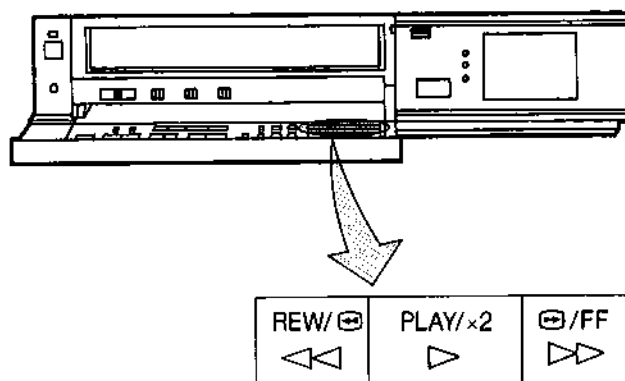


Repeat Playback between the Beginning of the Tape and the End of the Tape

- 1 Press the Memory/Repeat/Search Button so that the Repeat Indicator "R" lights up.

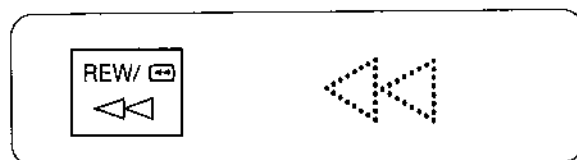


- 2 Press the Play/x2 Button.
 - The playback will continue until the end of the tape. At this point, the tape will be rewound to the beginning and the playback will be repeated.
- 3 To stop the Repeat playback, press either the Stop Button or the Memory/Repeat/Search Button twice (the Repeat Indicator "R" will go out).



Rewind and Fast Forward

Press the Rewind ◀◀/Review (◀◀) Button to rewind the tape.



Press the Fast Forward ▶▶/Cue (▶▶) Button to wind the tape forward rapidly.

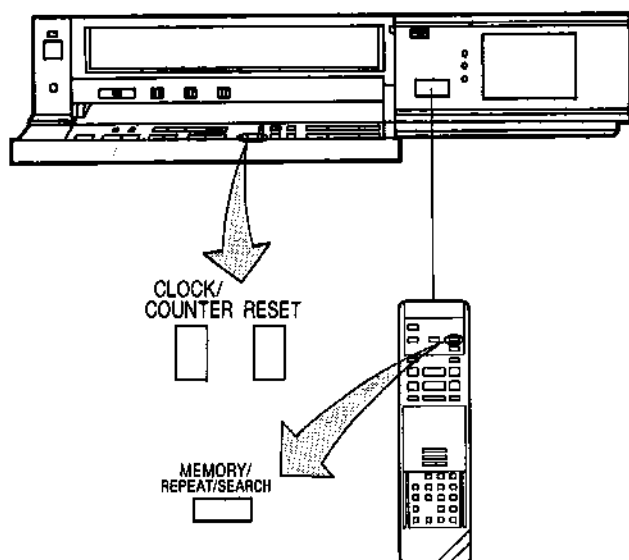


NTSC Playback

Tapes recorded in the NTSC system can be played back with this VTR via a PAL system TV set equipped with automatic switching of 625/525 lines. Consult your dealer for details.



- Depending on the TV set used, the picture may shrink vertically and black bars may appear both at the top and bottom of the screen. This is not an indication of a malfunction.
- And the playback picture may roll up or down. If the TV set is equipped with a V-HOLD control, it may be possible to stop the picture movement by adjusting this control.
- The special playback functions (except normal playback) cannot be used for NTSC tapes. This is not an indication of a malfunction.
- Recording in the NTSC system is not possible with this VTR. Insert editing and audio dubbing also would not function correctly, this VTR is intended for NTSC playback only.



Clock/Counter Selector

By pressing this button when the VTR On/ Off Switch is set to "On", it is possible to change over the display mode of the Clock/Counter Display in the Multi-Function Display from "Clock" to "Counter" Display and vice versa.

- Even if the selector button is set for "Counter" the display will automatically changes over to "Clock" Display in all the following cases; When you set the VTR On/Off Switch to "Off", adjust the clock to present time, programme a timer recording, check a timer recording programme or programme and perform an OTR.
- When the Clock/Counter Display shows the time, the counter cannot be reset and the Memory and Search Function cannot be activated ("M", "R" and "S" indication does not light up.)

Lap Time Counter

It shows the elapsed recording or playback time.



The "-" indication will appear when the tape is rewound further than the tape counter position "0:00.00".

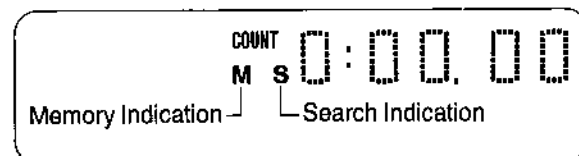
- If the figures on the Tape Counter do not change during Fast Forward, Rewind or any of the Playback functions, this means that nothing is recorded on that tape section.
- The Tape Counter is automatically reset to "0:00.00" when the video cassette is inserted.
- During playback of NTSC tapes, the Tape Counter does not function correctly.

Memory/Repeat/Search Button

Repeatedly pressing this button will change the indication in the following order: "M" (Memory)→ "R" (Repeat)→ "S" (Search)→ both indications are off → "M"...

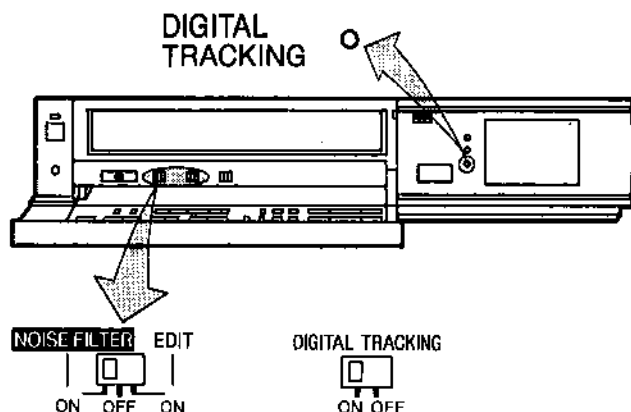
Memory Function

The Memory function makes it simple and fast to find a certain position on the tape later again, simply by pressing the Reset Button at that position to set the tape counter to "0:00.00" and by pressing the Memory/Repeat/Search Button. During Rewind or Fast Forward, the tape will then stop at approximately the desired position.



- Even if the Clock/Counter Display is switched over to "Clock" Display after pressing the Memory/Repeat/Search Button, the Memory function will stop the tape at the desired position.

PLAYBACK (CONT'D)



Digital Tracking Selector

Digital Tracking

ON: Select this position for digital tracking.

When playback is started after inserting a cassette, and the VTR is turned on, the Digital Tracking function will be activated automatically, the Digital Tracking Indicator will flash for several seconds, and the tracking will be adjusted automatically (after the adjustment, the Digital Tracking Indicator will remain lit).

- When the Digital Tracking Indicator is lit and the tape speed (SP/LP) is changed, the Digital Tracking function will be activated. However, when the VTR is operating in other modes than the playback, insert editing and audio dubbing, this function will not work.
- During playback, the Digital Tracking function will be activated whenever the playback changes over from an unrecorded part to a recorded part, provided the recorded part is longer than 4 seconds.

- When the picture is distorted by noise bars, press the Tracking (+) or (-) Button to select manual tracking and adjust with these two buttons. The Digital Tracking Indicator goes out. To change back to Digital Tracking, press the Tracking (+) and (-) Buttons simultaneously.

Manual Tracking

OFF: Select this position for manual tracking.

- When the playback picture is distorted by noise bars, adjust by pressing the Tracking (+) or (-) Button.
- To return the tracking control to the former setting, press the Tracking (+) or (-) Button simultaneously.

Noise Filter/Edit Selector

EDIT ON: For editing operations such as dubbing.

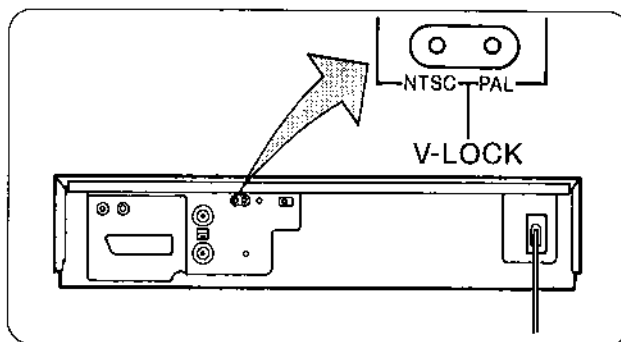
OFF: For ordinary use of the VTR.

NOISE FILTER ON: For playback of tapes with inferior picture quality caused, for example, by repeated dubbing.

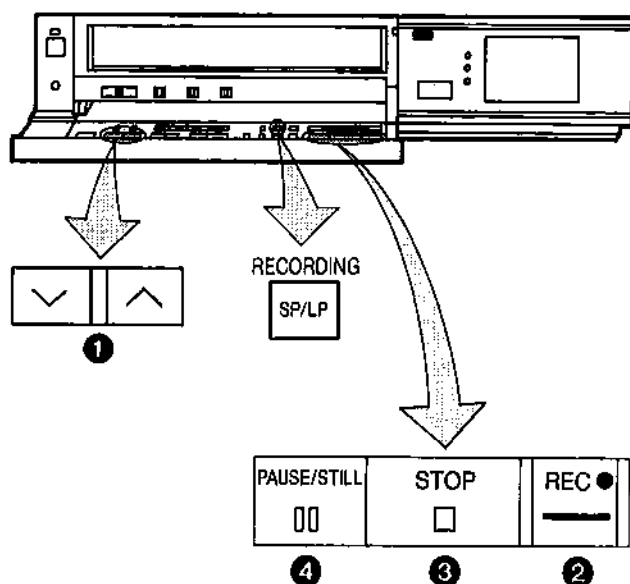
- When the Noise Filter/Edit Selector is set to "EDIT ON", the picture sharpness cannot be adjusted with the Picture Sharpness Control.

Vertical Lock Adjustment

If vertical jitter occurs during Still playback, adjust the V-Lock Control (on the rear of the VTR) for the corresponding recording system (NTSC or PAL) with the screw driver. A one-time adjustment should be all that is necessary.



RECORDING FROM A TV BROADCAST SIGNAL



Preparation

- Make sure that the Timer Record Function is set to "Off".
- Reset the Tape Counter to "0:00.00".
- Insert a video cassette with the erasure prevention tab intact.
When a video cassette is already inside the VTR, press the VTR On/Off Switch to turn it on.
- Set the Tape Speed Selector to "SP" or "LP".
- Set the Input Signal Selector to "Line/Tuner".

Tape Speed Selector (SP/LP)

For recording, either of two tape speeds can be selected. During playback, the VTR will automatically select the correct speed.

- SP Mode: Normal speed recording.
- LP Mode: Half speed recording.

It is not recommended to change from the SP to the LP mode or vice versa in the middle of recording. Even if the switching is done while the VTR is in the pause mode, picture distortion will occur at the switching point during playback.

Note:

The picture quality in the LP mode is not as good as that in the SP mode.

- 1 Select on the VTR, the programme position (channel) to be recorded. In order to confirm proper reception, turn on the TV set and select the video playback channel.

- 2 Press the Record Button (●).



When a video cassette with broken out tab is inserted, it will be ejected automatically.

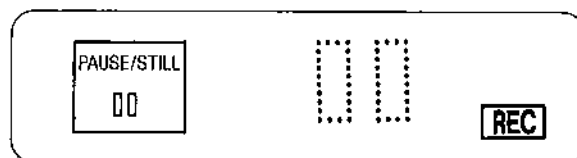
- During recording, the programme position (channel) on the VTR cannot be changed.
- To start a recording with the Remote Controller, press the two Record Buttons on the Remote Controller simultaneously.

To Finish the Recording

- 3 Press the Stop Button (■).

If You Wish to Avoid Recording Unwanted Material

- 4 Press the Pause/Still Button (||) to stop the tape temporarily.



- Press the Pause/Still Button (||) again to continue the recording.
- If you leave the VTR in the pause mode for more than 5 minutes, the VTR will automatically switch over to the stop mode to protect the tape and the video heads.

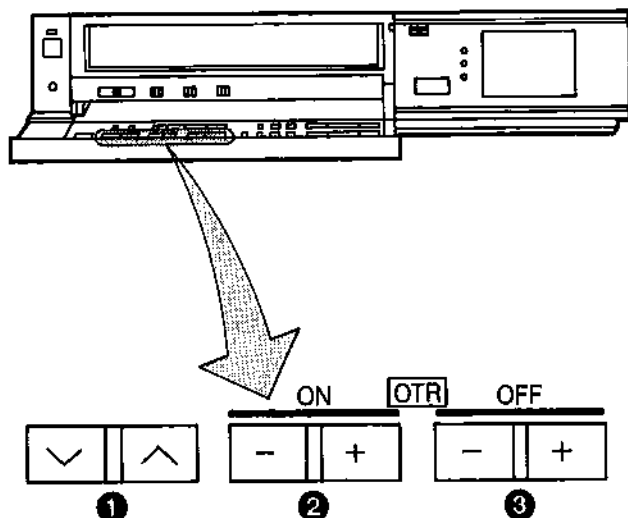
Recording One TV Programme While Watching Another

1. Record (following steps 1 and 2).
2. Select the desired programme position (channel) on your TV set.

- Disconnect all cables from the Video Input and Audio Input Sockets before starting the recording. If they remain connected, it is impossible to record TV programmes.

SUPER OTR FUNCTION (ONE-TOUCH TIMER RECORDING)

This convenient function makes it possible to easily programme the VTR for recording of TV programmes with immediate start or with start within 24 hours by precisely setting the starting time and ending time to the desired minute, and the VTR will automatically turn itself off when the recording ends.



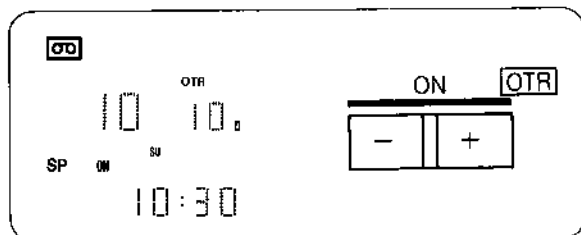
Preparation

- Make sure that the clock shows the present time correctly.
- Insert a video cassette with the erasure prevention tab intact.
When a video cassette is already inside the VTR, press the VTR On/Off Switch to turn it on.
- Set the Tape Speed Selector to "SP" or "LP".

It is possible to programme an OTR recording for a TV programme which will start immediately or within the next 24 hours.

(For example, OTR recording of a TV programme broadcast from 10:30 to 11:00.)

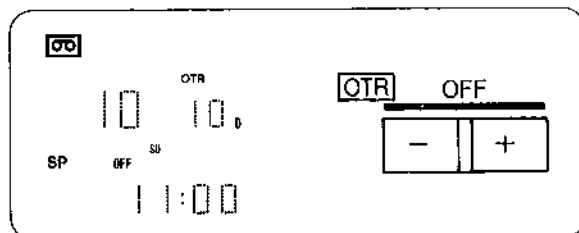
- 1 Select the programme position (channel) to be recorded.
- 2 Press the OTR On (+) or (-) Button to set the OTR starting time to 10:30.



- The "OTR" indicator will be displayed.

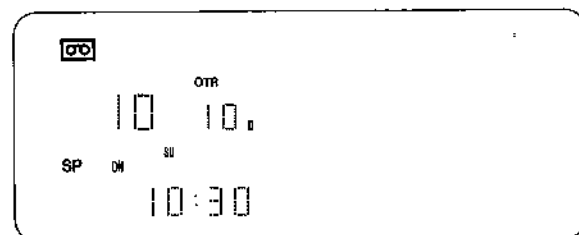
When a video cassette with broken out tab is inserted, it will be ejected automatically.

- 3 Press the OTR Off (+) or (-) Button to set the OTR ending time to 11:00.

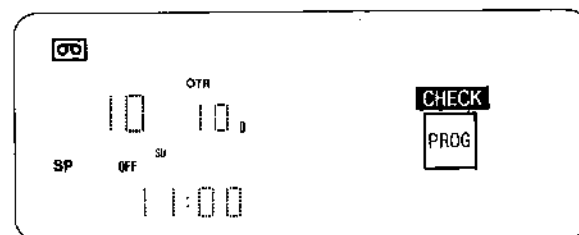


- When quickly and repeatedly pressing the OTR On (+) or (-) Button or the OTR Off (+) or (-) Button, the corresponding time indication changes in 1-minute steps. When it is kept pressed, the indication changes in 10-minute steps.
- After setting the OTR starting time in step 2, the OTR Off (+) or (-) Button must be pressed within 8 seconds to select the OTR ending time, otherwise the selected starting time will be cancelled.

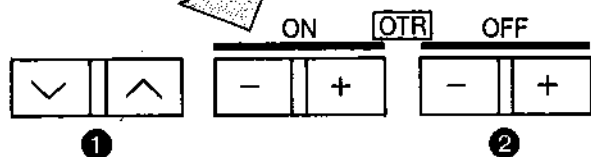
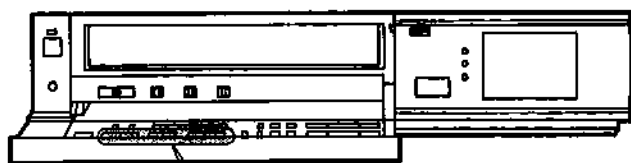
After 4 seconds, the display will automatically change back to the starting time indication.



To confirm the OTR ending time, press the Check/Programme Button once. When this button is pressed twice, the display will change to the clock indication mode.

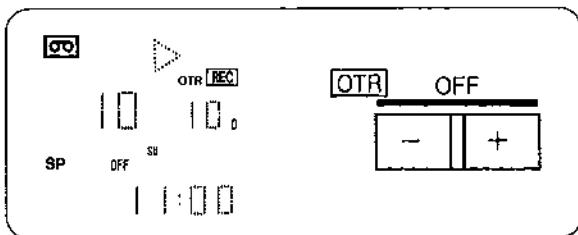


- The VTR will automatically switch off, when the OTR is completed. To turn the VTR on again, press the VTR On/Off Switch.



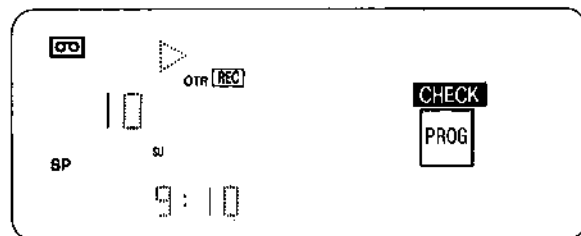
OTR Function with Immediate Start

- 1 Select the programme position (channel) to be recorded.
- 2 Press the OTR Off (+) or (-) Button to set the OTR ending time to 11:00.

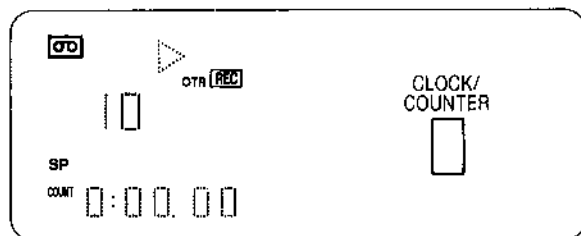


- When the tab of the inserted video cassette is broken out, it will be ejected automatically.
- The "OTR" indicator will be displayed.
- The VTR will automatically switch off, when the OTR is completed. To turn the VTR on again, press the VTR On/Off Switch.

When the Check/Programme Button is pressed once, the present time will be displayed.



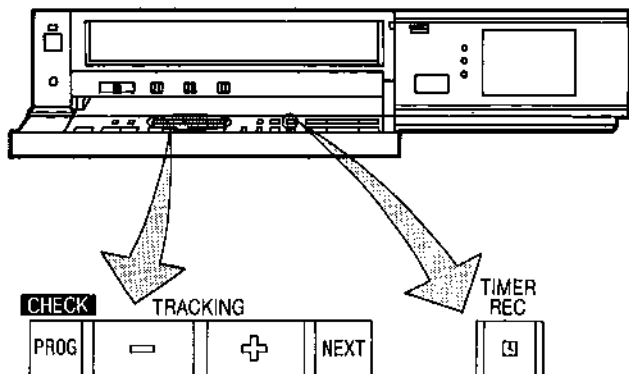
When the Clock/Counter Selector Button is pressed during OTR recording, the display will change over to the counter mode.



- When the tape reaches its end during an OTR the VTR will turn itself off.
- Make sure that the OTR Function (One-Touch Timer Recording) does not overlap a programmed timer recording. An OTR always takes precedence over a timer recording.
- It is possible to change the OTR starting time or the ending time before the recording starts.
- It is possible to perform any VTR operation (except timer recording) until the recording starts.
- It is possible to change the OTR ending time even during the recording.
- To interrupt an OTR, press the VTR On/Off Switch to turn the VTR off.
- Disconnect all cables from the Video Input and Audio Input Sockets before starting the recording. If they remain connected, it is impossible to record TV programmes.

TIMER RECORDING

The programming of timer recordings is possible both on the VTR itself and via the Remote Control Unit. Programming of as many as 8 timer recordings is possible up to one month in advance.



Preparation

- Make sure that the clock shows the present time correctly.
- Make sure that the Timer Record Function is set to "Off".
- Insert a video cassette with the erasure prevention tab intact.

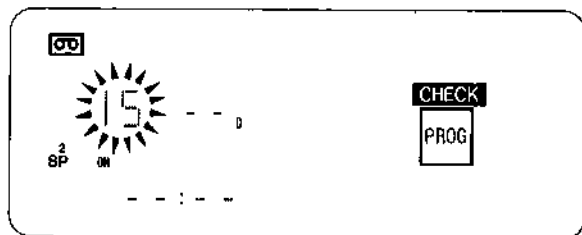
When a video cassette is already inside the VTR, press the VTR On/Off Switch to turn it on.

- Set the Tape Speed Selector to "SP" or "LP".

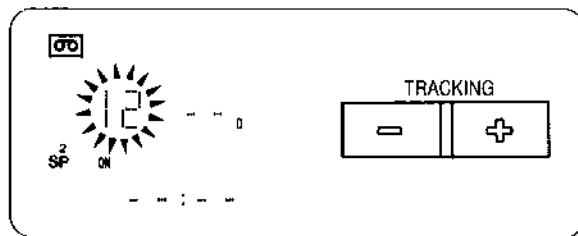
For Example:

Programming a timer recording for a TV programme that will be broadcast on Wednesday, October 27, from 10:30 to 11:45, on programme position (channel) 12, on timer programme number 2. (Present date= October 10, 1999)

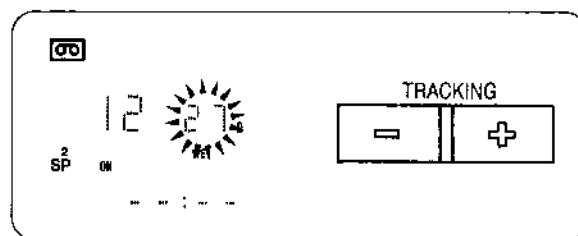
- 1 Press the Check/Programme Button to select the next unoccupied timer programme number.



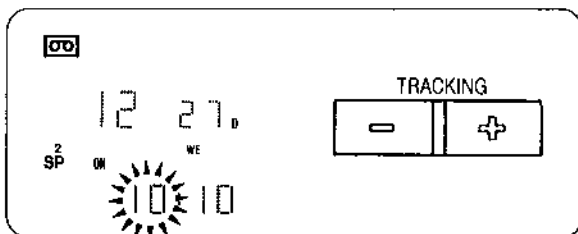
- 2 Press the (+) or (-) Button to select the programme position (channel) on which the TV programme will be broadcast.



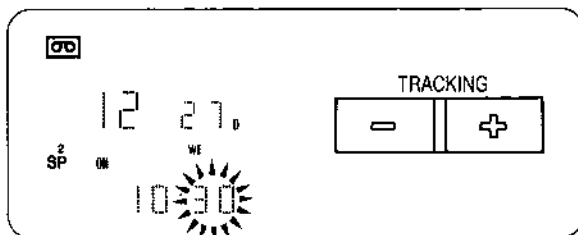
- 3 Press the Next Button.
- 4 Press the (+) or (-) Button to set the date.



- 5 Press the Next Button.
- 6 Press the (+) or (-) Button to select the hour of the starting time of the TV programme.

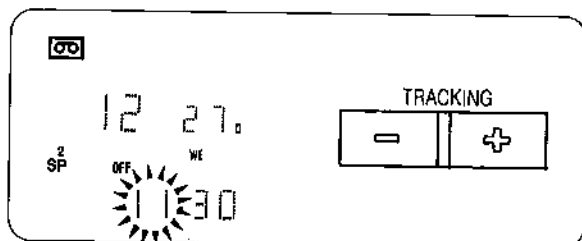


- 7 Press the Next Button.
- 8 Press the (+) or (-) Button to select the minute of the starting time of the TV programme.



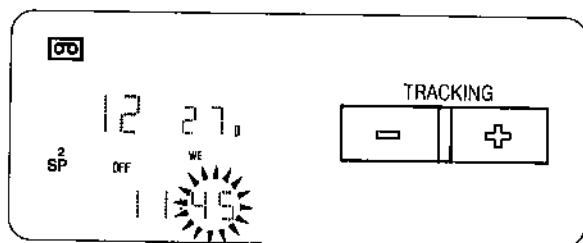
- 9 Press the Next Button.

- 10 Press the (+) or (-) Button to select the hour of the end time of the TV programme.

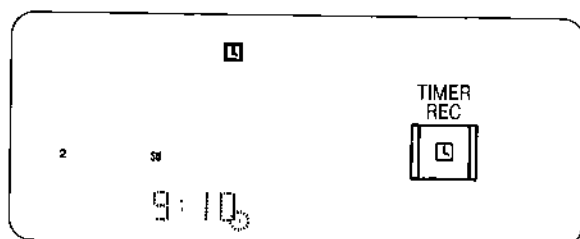


- 11 Press the Next Button.

- 12 Press the (+) or (-) Button to select the minute of the end time of the TV programme.



- 13 Press the Timer Record Button.



For Everyweek Recording

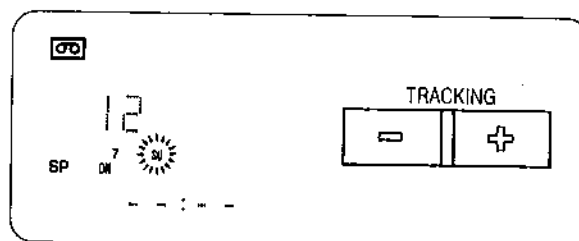
For Example:

Programming a timer recording for a TV programme that is broadcast every week on Sunday, from 10:30 to 11:45 on timer programme number 7.

Programming for everyweek recording can be made on any of the timer programme numbers 1-8.

Execute the operation steps 1 to 3.

- 4 Press the (-) Button repeatedly until the "SU" Indicator (= Sunday) is lit.



Perform the operation steps 5 to 10.

For Everyday Recording

For Everyday Recording, you have the choice between 3 different modes: Monday through Friday, Monday through Saturday, and Sunday through Saturday.

MO TU WE TH FR ——— ①
MO TU WE TH FR SA ——— ②
SU MO TU WE TH FR SA ——— ③

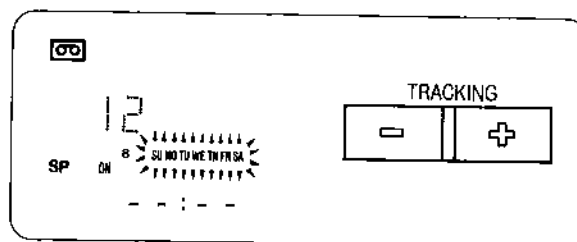
For example:

Programme time for timer recording every day from 10:30 to 11:45 on timer programme number 8.

Programming for everyday recording can be made on any of the timer programme numbers 1-8.

Execute the operation steps 1 to 3.

- 4 Press the (-) Button until the desired type of Everyday Recording (①, ②, ③) is displayed.



Perform the operation steps 5 to 13.

TIMER RECORDING (CONT'D)

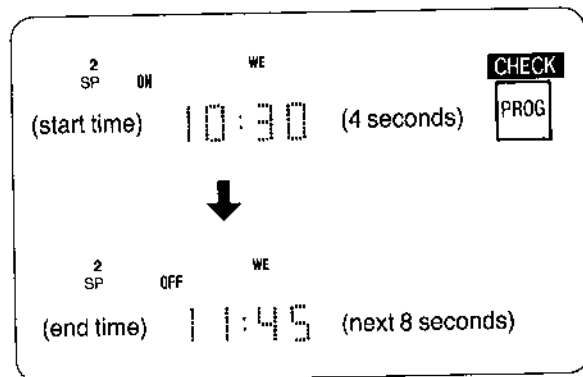
To Confirm the Programme of a Timer Recording

Make sure that the VTR is turned on.

Make sure that the Timer Record Function is set to "On".

Select the programme number to be checked, by repeatedly pressing the Check/Programme Button.

The preset channel and start and ending times of the timer recording will be indicated for about 12 seconds.



To Cancel a Timer Recording

Make sure that:

the VTR is turned on,

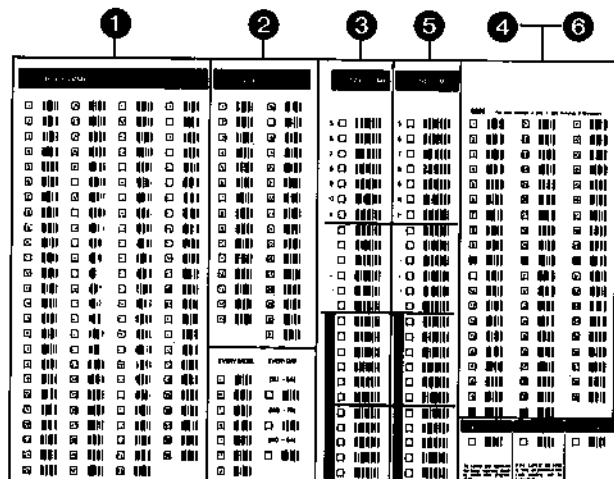
the Timer Record Function is set to "Off".

- ① Press the Check/Programme Button repeatedly, until the number of the timer programme that you want to cancel is displayed.
- ② Press the (+) and (-) Buttons simultaneously for more than 3 seconds.

- After the programmed timer recording has been made, set the Timer Record Function to "Off", otherwise the VTR cannot be operated normally.
- During recording, the programme position (channel) on the VTR cannot be changed.
- When you want to watch TV after setting a timer recording, select the desired channel on the TV set.
- To cancel a timer recording during recording, set the Timer Record Function to "Off".
- It is impossible to confirm programmes of timer recordings while an OTR is being performed.
- To turn the VTR on and use it for playback or recording before the timer recording is performed, set the Timer Record Function to "Off".
- When the Timer Record Function is set to "On" but no video cassette is inserted or no timer recording has been programmed, the Timer Recording Indicator  will flash to inform that the timer recording cannot be performed.
- If no cassette is inserted in the VTR, the  and "OO" Marks will flash.
- Disconnect all cables from the Video Input and Audio Input Sockets before starting the recording. If they remain connected, it is impossible to record TV programmes.

Timer Recording by Using the Remote Controller

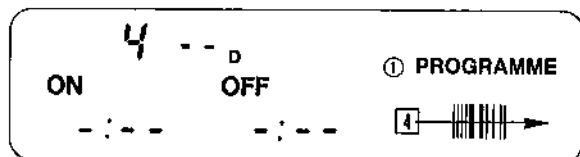
Tracing the Bar Codes



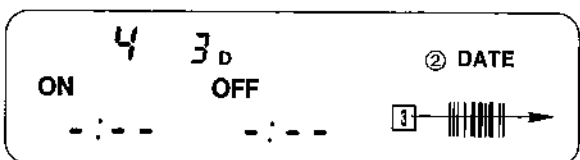
Example: When programming a timer recording for a programme that will be broadcast on channel position 4 on the 3rd of the month, from 7:02 to 7:30, trace the bar codes in the order of the numbered arrows shown below.

Press the Digital Scanner On/Off Button to "ON".

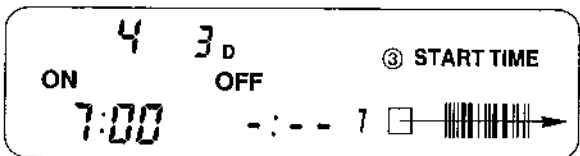
- Trace the bar code for "PROGRAMME".



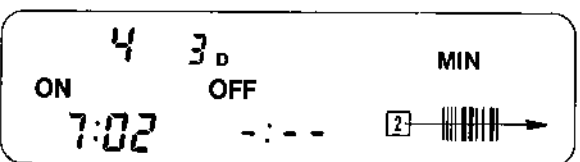
- Trace the bar code for "DATE".



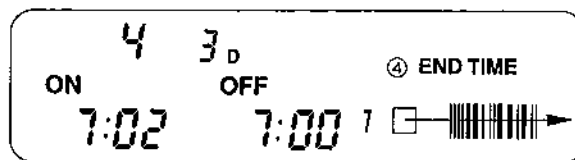
- Trace the bar code for "START TIME".



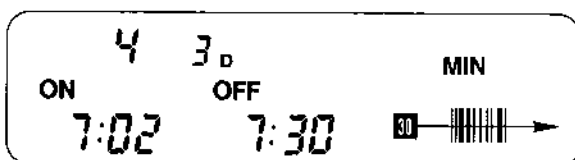
- Trace the bar code for "MIN".



- Trace the bar code for "END TIME".



- Trace the bar code for "MIN".



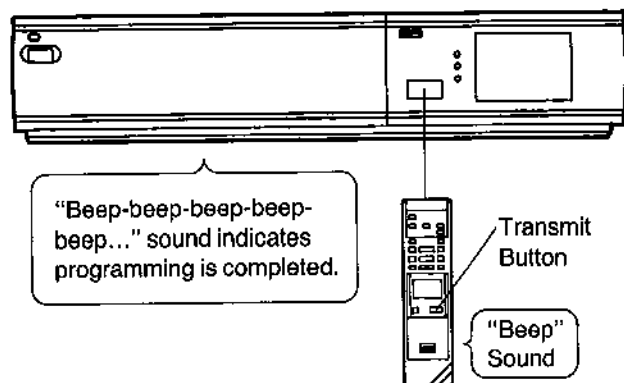
- The "Bee Bee Bee Bee Beeeeep" sound signals that the scanner is now ready for data transmission.
- When no sound is heard, read the bar codes once again.
- If more than one bar code is read in the same group, only the last code will be effective.
- If the "CANCEL" bar code is read, all bar codes that have been read so far will be cancelled.

TIMER RECORDING (CONT'D)

Transmit the Programming Data

Keep pressing the Transmit Button and confirm that the programmed data on the Multi-Function Display of the VTR are as desired.

After releasing the button, the data will continue to be displayed for about 12 seconds.



- If the transmission was not received correctly, the "Beep-Beep, Beep-Beep" sound from the VTR will warn you. In this case, perform transmission again.
- The transmission is possible when the VTR is turned on but is not in any of the recording or playback operation modes. It is also possible when the VTR is in the timer recording standby mode (⏏ indication is lit).
- The programming will be done on the next lower unoccupied timer programme number (8~1).
- If all programme numbers are occupied, the "Beep-Beep, Beep-Beep" sound from the VTR will warn you that the programming cannot be made.
- When the Transmit Button is pressed, the VTR will automatically be put into the timer recording standby condition and the VTR will be turned off.
- To operate the VTR before the timer recording will be performed, press the Timer Record Button to suspend the timer recording standby condition. After using the VTR, be sure to press the Timer Record Button again, otherwise the timer recording will not be made.

Timer On/Off

After programming a timer recording, the VTR is in the timer recording standby mode and cannot be used for any other operation, such as playback. If some other operation is desired, first trace the "TIMER ON/OFF" bar code and transmit it to the VTR with the Transmit Button.

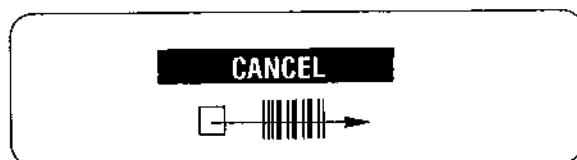
To later reset the VTR to the timer recording standby mode, trace the "TIMER ON/OFF" bar code again and transmit it with the Transmit Button.



For Programming More Than One Timer Recording in Succession

Repeat the following operation steps ①-③.

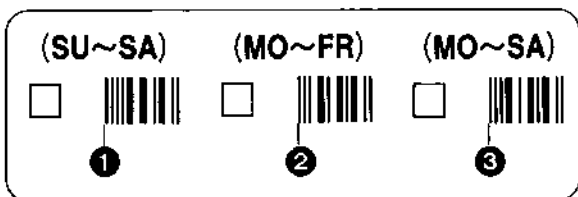
- ① Trace the "CANCEL" bar code on the Programming Sheet.



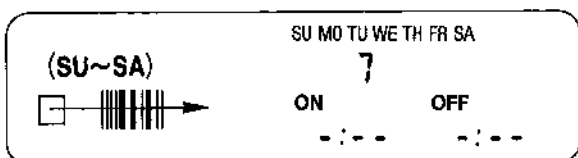
- ② Trace the bar codes for "PROGRAMME", "DATE", "START TIME" and "END TIME".
- ③ Confirm that the present time is displayed on the Multi-Function Display of the VTR, and transmit the data.
 - If the next timer programming data are transmitted while the previous timer programming data are still being displayed, the displayed timer recording data will be cancelled.

For Everyday Recording

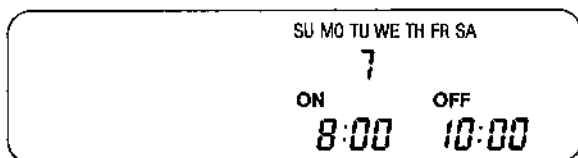
When programming an everyday recording using the bar codes, you have the choice between 3 different modes: Sunday through Saturday, Monday through Friday, and Monday through Saturday.



- ① Turn on the Digital Scanner and trace the "PROGRAMME" bar code.
- ② Trace the desired "EVERYDAY" bar code (①, ②, ③).



- ③ Trace the "START TIME" and then the "END TIME" bar codes, and transmit the data to the VTR.



- Everyday recording will be performed from that day on.
- If a "DATE" bar code is traced after tracing the "EVERYDAY" bar code, everyday recording will not be performed.

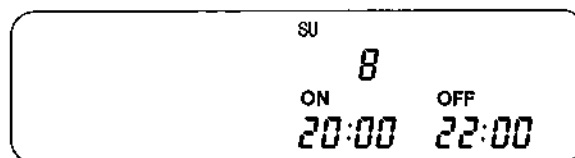
For Everyweek Recording

- ① Turn on the Digital Scanner and trace the "PROGRAMME" bar code.
- ② Trace the bar code for the desired day of the week among the "EVERYWEEK" bar codes.

EVERYWEEK

Sunday	—	SU	
Monday	—	MO	
Tuesday	—	TU	
Wednesday	—	WE	
Thursday	—	TH	
Friday	—	FR	
Saturday	—	SA	

- ③ Trace the "START TIME" and then the "END TIME" bar codes, and transmit the data to the VTR.

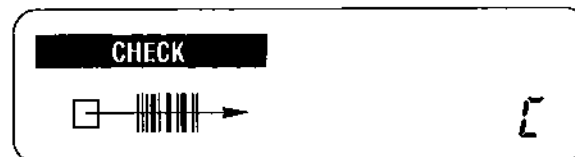


- Everyweek recording will be performed from that week on.
- If a "DATE" bar code is traced after tracing the "EVERY-WEEK" bar code, everyweek recording will not be performed.

To Confirm the Programme of a Timer Recording

To perform this operation, the VTR must be turned on or it must be in the timer recording standby mode (□ indication is lit).

- ① Trace the "CHECK" bar code.



- ② Perform transmission.
 - After releasing the Transmit Button, the programmed data will be displayed for about 12 seconds on the Multi-Function Display.
 - At every push of the Transmit Button, the timer programme number advances to the next higher number.

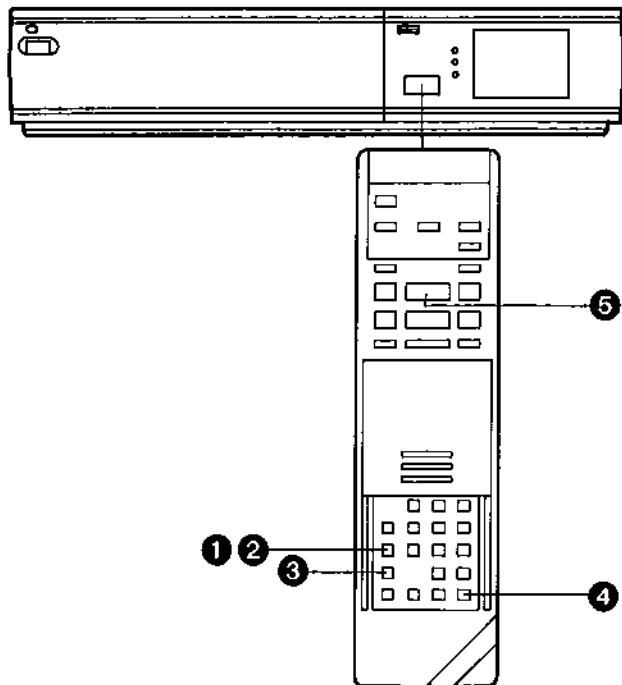
To Cancel a Programmed Timer Recording

To perform this operation, the VTR must be turned on but not be in any of the recording or playback operation modes, or it must be in the timer recording standby mode (□ indication is lit). To cancel a programmed timer recording, its data must be displayed on the Multi-Function Display. If they are no longer displayed, first, trace the "CHECK" bar code and perform transmission (several times, if necessary, until the programme you want to cancel is displayed). Then, within 12 seconds :

- ① Trace the "CANCEL" bar code.
- ② Perform transmission.
 - To programme a new timer recording, perform the programming from the beginning.

DIGITAL SPECIAL EFFECTS

The special digital picture effects can be enjoyed by using the Remote Controller.

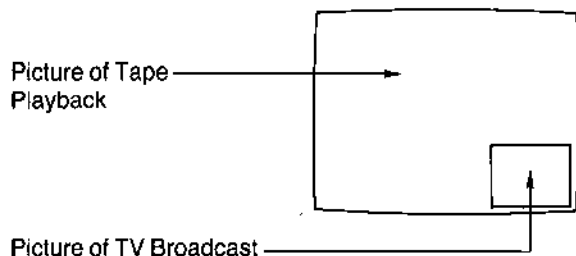


Picture-in-Picture

This function makes it possible to watch a TV programme while playing back a tape.

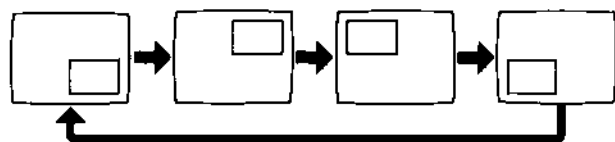
- The Picture-in-Picture function works in any of the playback functions: normal playback, Cue, Review, Still and Slow.
- Set the Input Selector to "Line/Tuner" position.

- 1 When the **[P in P]** Button is pressed during playback of a tape, a small picture of the TV channel selected on the VTR appears in the bottom right corner of the screen.
 - Only the sound of the large picture is reproduced.



- The TV channel can be changed with the Programme Position Selector Buttons either on the Remote Controller or on the VTR itself.

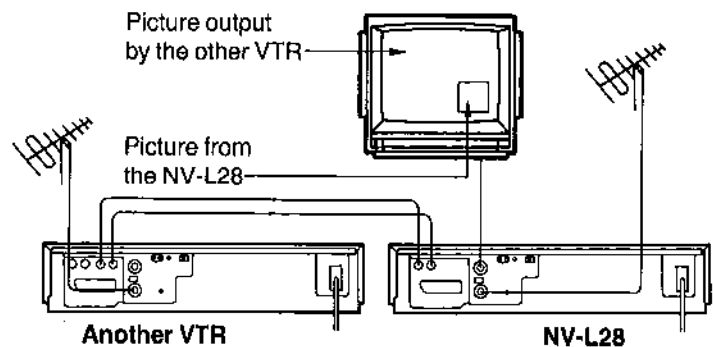
- 2 By pressing the **[P in P]** Button repeatedly, the position of the small picture can be changed as follows.



- 3 By pressing the **[P in P]** Button, the large picture can be changed into the small one and vice versa.
 - Depending on the TV set used, there may be some momentary picture distortion when they are exchanged.
- 4 To return to the normal (single-picture) playback, press the **CLEAR** Button.
- 5 To watch the TV broadcast alone on the whole screen, press the **STOP** Button.
 - When the **3-SCREEN** Button is pressed during the Picture-in-Picture playback, the small picture will be displayed in the 3-Screen Multi Select mode.
 - When the **F. STORE** Button is pressed during the Picture-in-Picture playback, the small picture will be displayed in the 1/4-Screen Frame Store mode.

TV in TV

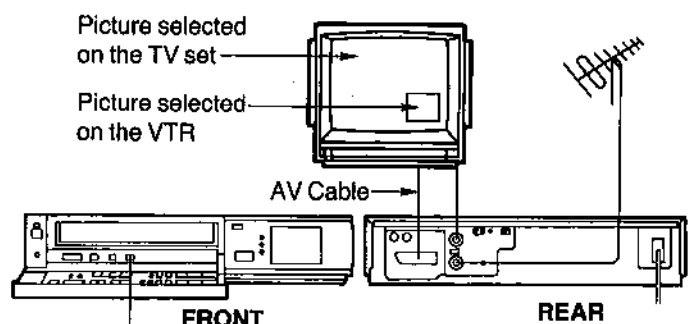
- 1 When the NV-L28 is connected to another VTR and a TV set, as shown below, it is possible to watch two TV programmes simultaneously on the TV screen. The operation of this TV-in-TV function is the same as the Picture-in-Picture function.



When the above connection is used for dubbing and P in P mode selected, it is possible to simultaneously confirm both the picture from the playback VTR and the playback picture from the recording VTR on the same screen for searching the picture insert position.

- The TV-in-TV mode also works when the VTRs are connected via AV cable. Set the Input Selector to "AV" position.

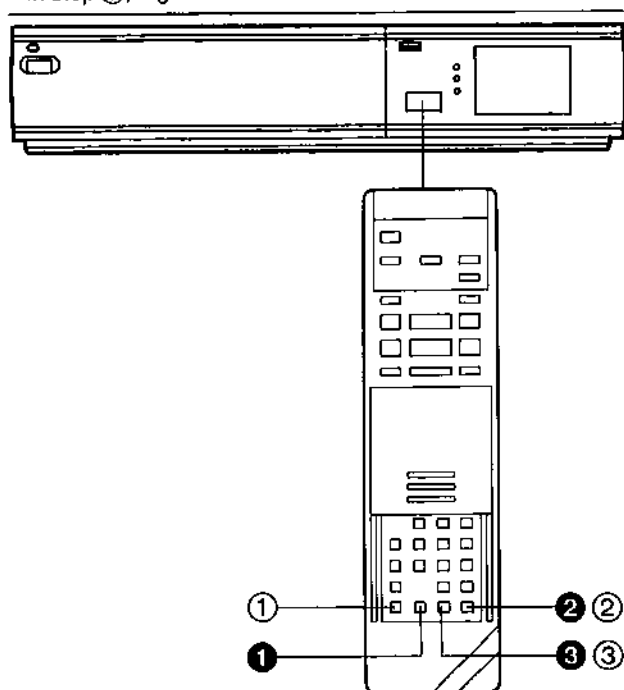
- 2 When the NV-L28 is connected to a TV set, it is possible to watch two TV programmes simultaneously on the TV screen, only sound from main picture can be heard.



To use this function, set the Input Signal Selector to AV position.

Operating Procedures

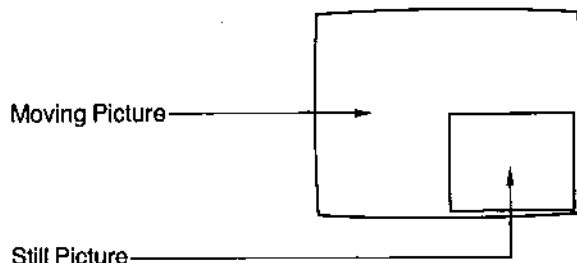
1. Select a TV programme on TV set.
 2. Select "AV" mode on TV set.
 3. Press "P in P" button on VTR's Remote Controller.
 4. Press programme position buttons on VTR's Remote Controller to view other programmes on small picture.
- It is possible that the TV-in-TV function will not work with certain TV sets. In such a case, use the connection shown in step ①, e.g. TV sets without AV socket.



1/4-Screen Frame Store

This function can be used to freeze the action at any desired moment and superimpose it as a still picture in 1/4-screen size onto the moving playback picture. The reproduction of the sound of the moving picture (full screen) will continue normally. In addition to the playback of video tapes, this 1/4-Screen Frame Store function can also be used for TV broadcasts (received with the TV tuner in the VTR) as well as for pictures input from an external source.

- ① When the F. STORE Button is pressed, a still-picture of that moment's action will appear in the bottom right quarter of the screen.

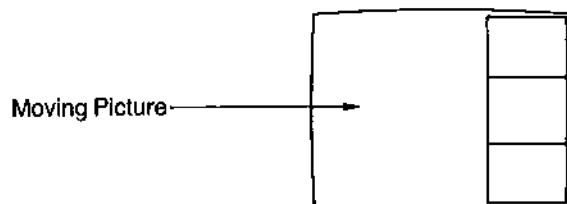


- Every time the F. STORE Button is pressed, the moving picture of that moment will be displayed as a still-picture.
- When this button is kept pressed, still pictures taken at half-second intervals will be displayed for a strobe-like effect.

- ② To return to the former condition (single-picture playback or TV broadcast), press the CLEAR Button.
- ③ If the RECALL Button is pressed, this part of the screen will return to the condition before the CLEAR Button was pressed.

3-Screen Multi Select

- ① When the 3-SCREEN Button is pressed, three small pictures frames will appear on the right side of the screen and can be filled with still-pictures from top to bottom.



- Press the 3-SCREEN Button successively at the scenes which you want to display as still-pictures. The still-pictures will be displayed and updated from top to bottom.
 - When this button is kept pressed, the still-pictures will be displayed in 0.3-second intervals.
- ② To return to the former condition (single-picture playback or TV broadcast), press the CLEAR Button.
 - ③ If the RECALL Button is pressed, this part of the screen will return to the condition before the CLEAR Button was pressed.

- When "S" Mark in the Multi-Function Display is lit, the Digital Function Buttons cannot be operated. If you want to use the Digital Functions, press the Memory/Repeat/Search Button (the "S" Mark will disappear).
- When playing back tapes recorded in the NTSC system, the digital functions cannot be used.

Remarks for Picture-in-Picture

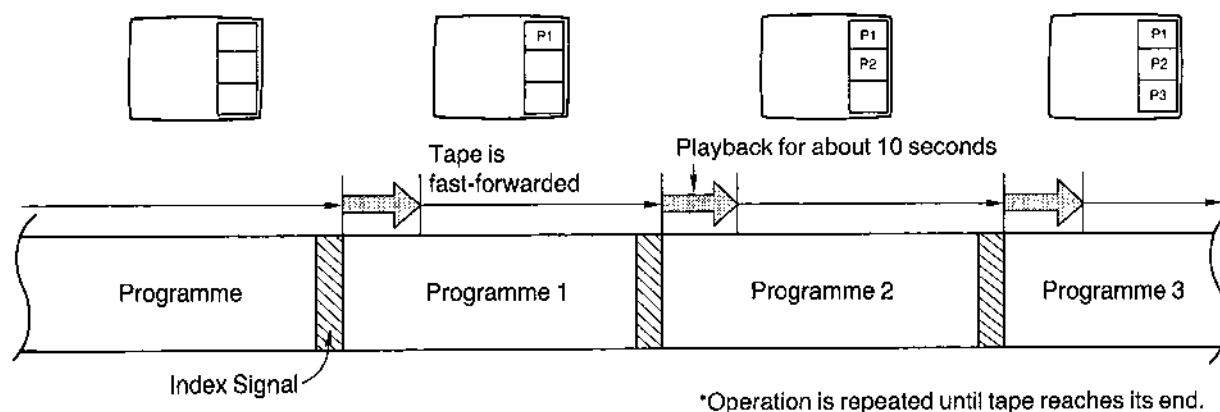
When using special playback functions (other than normal playback), the small pictures may be in black-and-white or they may contain colour flicker. These phenomena are apt to occur with tapes that do not fully satisfy the VHS standard.

About the Superimposed Small Pictures

- The picture may vibrate vertically, be distorted and the colour may be unstable. However, this is not due to any malfunction.
- Depending on the type of TV set used, the small pictures may not display the full picture content.
- When the large picture is in black-and-white, the small pictures are also in black-and-white.
- When the special playback signals (Cue, Review, Still, Slow etc.) are being input from another VTR, the small picture may be distorted.

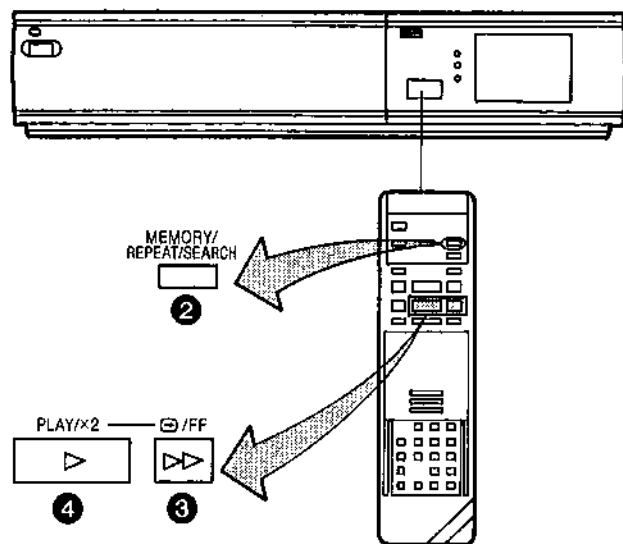
DIGITAL INTRO SCAN FUNCTION

How the Digital Intro Scan Function Works...



The Intro Scan function plays back the first 10 seconds of each programme (marked by an index signal) on a tape one after another on the full screen. The first picture of each of these 10-second segments is then frozen and displayed as a still-picture in the 3-Screen Multi Select mode on the right side of the TV screen from the top to the bottom.

Intro Scan Operation

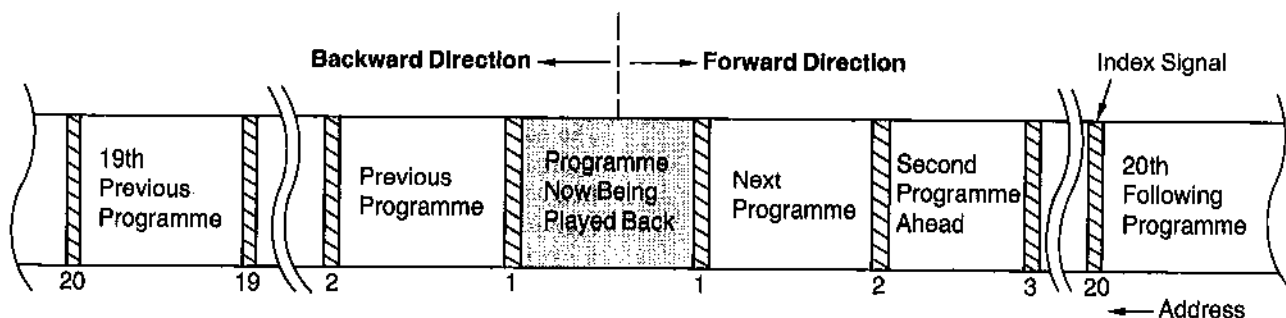


- 1 Insert a video cassette.
(Put the VTR in the stop mode.)
- 2 Press the Memory/Repeat/Search Button three times.
(The blank three small picture appears on the right of the screen and "S" mark appears.)
- 3 Press the Fast Forward **FF**/Cue **FF** Button.
(The Intro Scan starts.)
- 4 When the desired scene is reached, press the Play/x2 Button twice (For normal speed playback).
 - If you want to use the Digital Function after that, press the Memory/Repeat/Search Button (the "S" Mark will disappear).

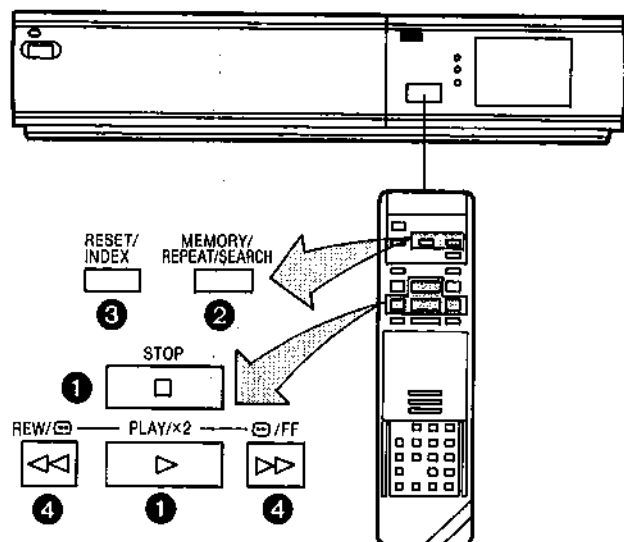
- The Intro Scan function may not be activated for the first programme recorded close to the beginning of the tape.
- During the Intro Scan, if there is a portion without any recording on the tape, the Intro Scan function will be activated at that position to play back the tape for about 10 seconds, and the Intro Scan will then continue.
- The Intro Scan function may not be activated, if the interval between programme starts is less than 5 minutes in the LP mode, or less than 2 minutes in the SP mode.

VHS INDEX SEARCH SYSTEM

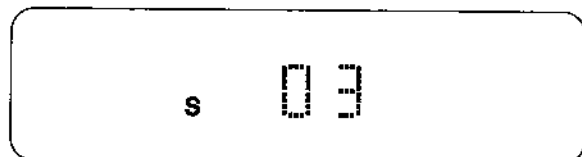
How to Count the Addresses



With the VHS Index Search function, up to 20 addresses (places where index signals are recorded) can be skipped to directly locate the beginning of the desired programme in both forward and reverse direction in the Fast Forward or Rewind mode.



- 1 Press the Play/x2 Button (▶) or Stop Button (■).
- 2 Press the Memory/Repeat/Search Button.
 - The indication "S" appears on the Multi-Function Display.
- 3 Repeatedly press the Reset/Index Button to select the desired address. The number of the selected address is shown on the Multi-Function Display.



- 4 Press the Rewind ◀◀/Review ◀◀ or Fast Forward ▶▶/Cue ▶▶ Button to start the VHS Index Search function (the VTR will switch to the rewind or fast-forward mode).

- Every time an index signal (address) is skipped the number in the Address Indication decreases by one.
- When the preset address is reached, the Tape Counter Indication will appear in place of the Address Indication, and the normal playback will start.
- To abort the Index Search function midway, press the Play/x2 or the Stop Button.

Recording of Index Signals

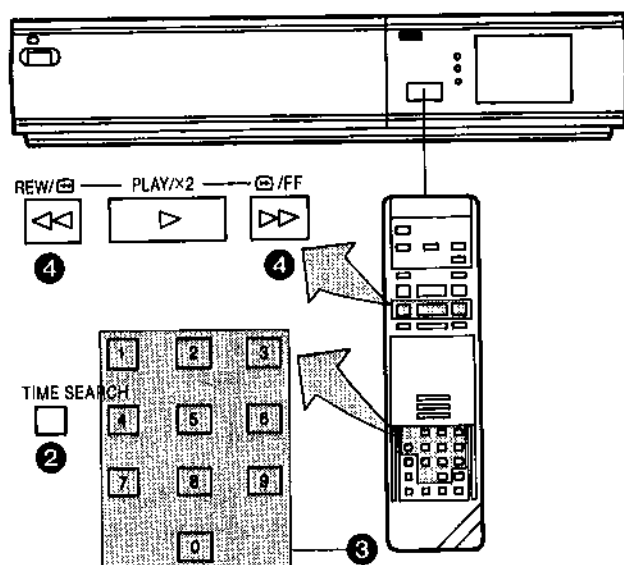
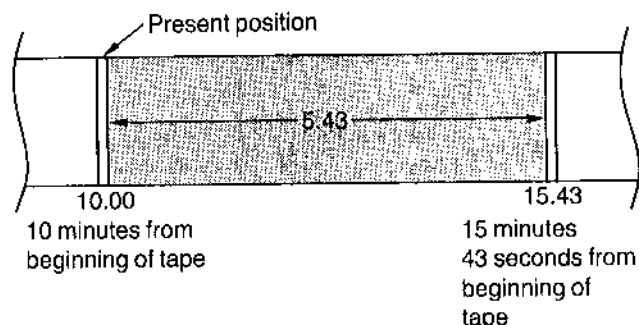
Index signals will be recorded automatically in the following cases:

- At the tape position at which the Record Button is pressed to start recording.
- At the tape position at which an OTR recording is started.
- At the beginning of the first programme of timer recordings only.

- When activating the VHS Index Search function from the Still playback mode, the playback will start when the selected programme is reached.
- If the VHS Index Search function is started extremely close to the beginning of the next programme (place where an address signal is recorded) or from the beginning of the tape, the first address may not be counted.
- If there are unrecorded parts on the tape, or if recordings have repeatedly been made on the same tape portion, the VHS Index Search function may not work correctly.

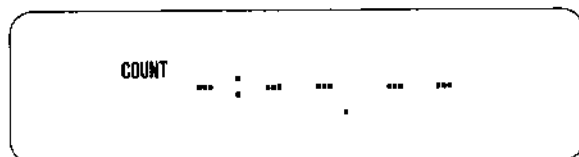
TIME SEARCH

The Time search function makes it possible to quickly advance the tape from any position by inputting the exact desired amount of playback time of the part that you want to skip.

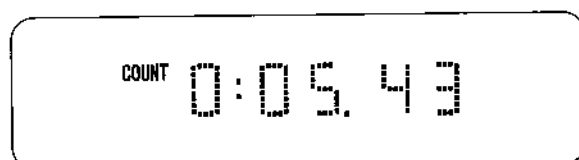


Time Search from the Stop Mode

- 1 Put the VTR in "STOP" mode.
- 2 Press the Time Search Button.
The indication in the Multi-Function Display changes as shown below.



- 3 Input the time of the desired scene.
 - The time is input by pressing the number buttons in the order: hour, minute, second.
 - The "-" indication will be counted as "0".



- 4 Press the Fast Forward >>>/Cue >>> Button or the Rewind <<</Review <<< Button.

The playback starts after rewinding or fast forwarding to the tape position of the designated time.

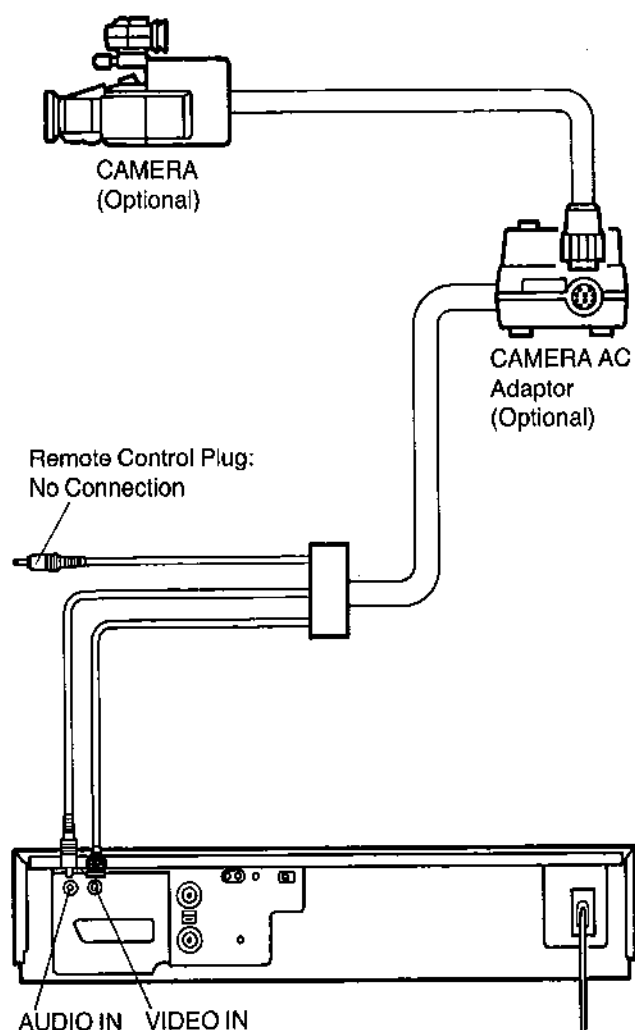
Time Search from the Play Mode

The operation is the same as that for the stop mode but in operation step 4, the Cue or Review (playback) is performed to the tape position of the designated time and the playback will then start.

If the time search function is activated during playback, a time of up to 9 minutes 59 seconds can be input.

- The numbers in the Tape Counter do not change during parts of the tape on which there is no recording.
- When the tape is inserted, the Tape Counter will automatically be reset to "0:00.00".
- When no time is input for the time search, a 2-minute tape segment is skipped and the playback will then resume.
If the time search function is activated during playback, but no time is input, a 30-second tape segment will be skipped and the playback will then resume.

CAMERA RECORDING



- If you leave the VTR in the pause mode for more than 5 minutes, the VTR will stop automatically to protect the tape and the video heads.
- Even if the video camera is equipped with video recorder remote control functions, this VTR can not be remote-controlled from the camera.
- Disconnect all cables from the Video Input and Audio Input Sockets after finishing camera recording. If they remain connected, it is impossible to record TV programmes.

Preparation

- Connect the Video Camera via the Camera AC Adaptor to the VTR as shown in the illustration above.
- Insert a video cassette with the erasure prevention tab intact.
When a video cassette is already inside the VTR, press the VTR On/Off Switch to turn it on.
- Set the Tape Speed Selector to "SP" or "LP".

- 1 Turn the Camera AC Adaptor on and make the necessary adjustments on the camera.
Refer to the operating instructions of the camera you are using.
- 2 Press the Record Button (●) on the VTR to start recording.

Avoid recording unwanted material:

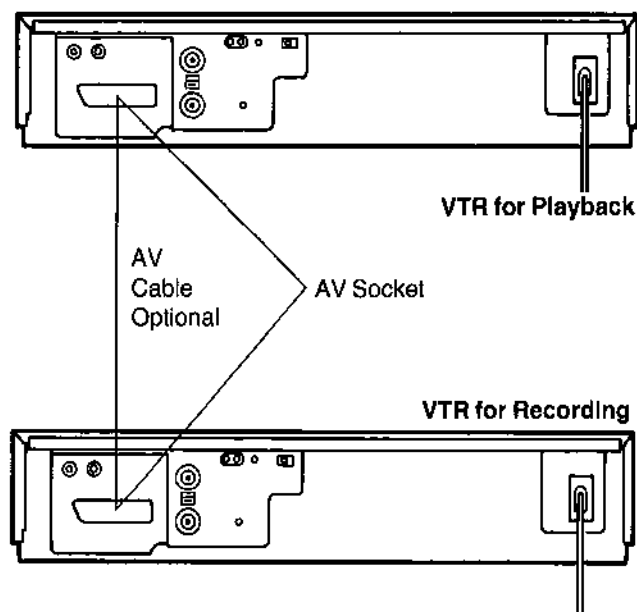
Press the Pause/Still Button (||) on the VTR, and the recording will stop temporarily. To restart recording, press the Pause/Still Button (||), again.

- 3 Press the Stop Button (■) on the VTR to stop the recording.

DUBBING (COPYING)

Dubbing (copying) from one video cassette to another.

If both VTRs are equipped with a AV Connector



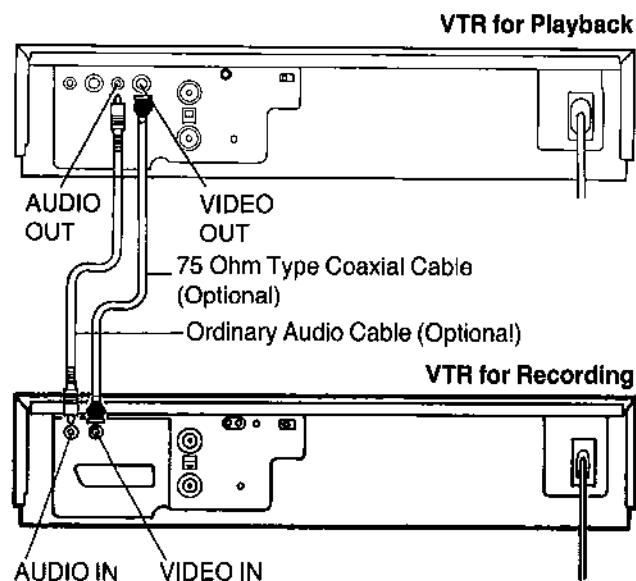
Preparation

- Make the necessary connections as shown in the connection diagram.
- Press the VTR On/Off Switches to turn both VTRs on.
- Set the Input Signal Selector to AV position on the Recording VTR.
- Make sure that the Noise Filter/Edit Selector of both the recording and playback VTRs (if equipped) are in the "EDIT ON" position. Set these switches to "OFF" for ordinary use of the VTRs.

(The Noise Filter/Edit Selector is on the front panel.)

- 1 Place the recorded cassette in the playback VTR and a blank video cassette with the erasure prevention tab intact in the recording VTR.
- 2 Press the Record Button (●) on the recording VTR.
- 3 Press the Play/×2 Button (▶) on the playback VTR.
- 4 Press the Stop Button (■) on both VTRs to stop the dubbing.

Connecting the VTR to another VTR which is not equipped with a AV socket



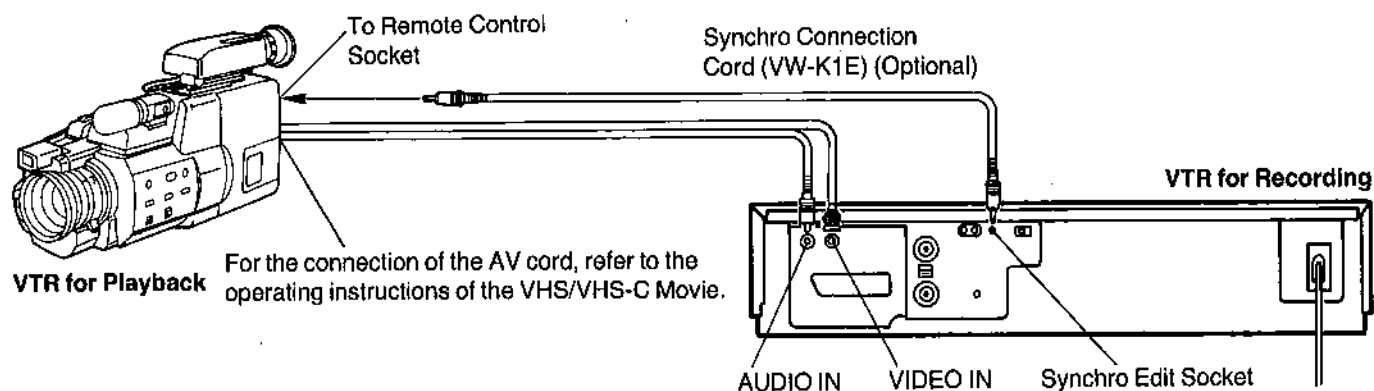
Preparation

- Make the necessary connections as shown in the connection diagram.
- Press the VTR On/Off Switches to turn both VTRs on.
- Make sure that the Noise Filter/Edit Selector of both the recording and playback VTRs (if equipped) are in the "EDIT ON" position. Set these switches to "OFF" for ordinary use of the VTRs.

(The Noise Filter/Edit Selector is on the front panel.)

The operations are the same as shown on the left.

- To assure smooth, noiseless cuts when interrupting the recording, always use the Pause/Still Button (||).
- To obtain smooth cuts when starting the recording from the stop mode:
 1. Play back the last part of the previously recorded material to confirm its ending point, and then press the Pause/Still Button (||).
 2. Press the Record Button (●).
(The VTR is still in the pause mode.)
 3. To start recording, press the Pause/Still Button (||) again.
- The picture quality of a re-recorded tape is not as good as that of the original.
- Disconnect all cables from the Video Input and Audio Input sockets after finishing the recording. If they remain connected, it is impossible to record TV programmes.



Connecting to a VHS/VHS-C Movie Equipped with Synchro Edit Function

It is possible to synchronize the playback start and stop of the VHS/VHS-C Movie with the recording start and stop of this VTR.

Preparation

- Make the necessary connections as shown in the connection diagram.
- Set the Edit Switch (Noise Filter/Edit Selector) on both the VHS/VHS-C Movie and on this VTR to "ON" (or "EDIT ON").

- 1 Put the VTR in the recording pause mode.
- 2 Put the VHS/VHS-C Movie in the still playback mode.
 - Put the Movie at the point where you want to start editing into the still playback mode.
- 3 Press the Pause/Still Button on the VTR.
 - The VHS/VHS-C Movie changes over to the playback mode and the dubbing will start automatically.

To Leave Out Unwanted Scenes

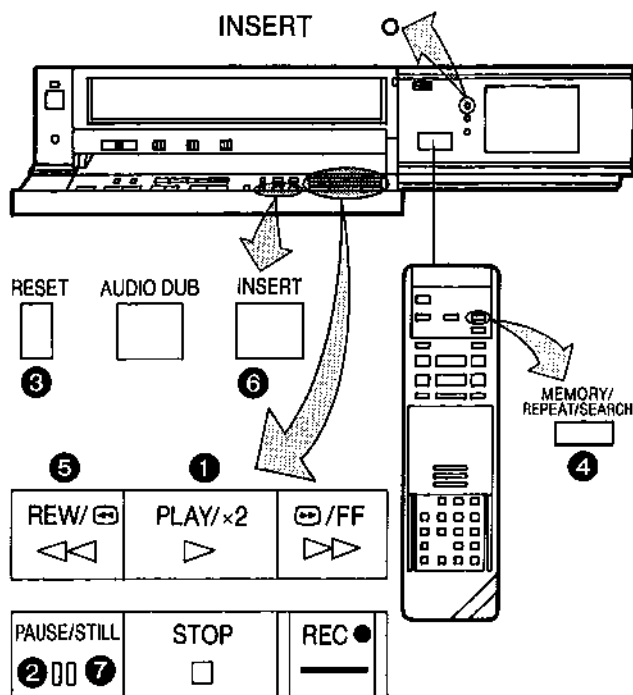
- 1 Press the Pause/Still Button on the VTR.
 - The VTR changes over to the recording pause mode and the VHS/VHS-C Movie changes over to the still playback mode.
- 2 Operate the VHS/VHS-C Movie to skip the unwanted scenes and then put it in the still playback mode again.
- 3 Press the Pause/Still Button on the VTR.
 - The dubbing will restart.

To stop the dubbing, press the Stop Button on the VTR and then put the VHS/VHS-C Movie in the stop mode.

INSERT EDITING

Insert Editing is an editing system that allows replacing scenes on a previously recorded tape by newly recorded scenes or titles.

It is possible to record new sound at the same time.



Preparation

- Connect the systems needed for the Insert Editing.
- Insert a video cassette with the erasure prevention tab intact.
- When performing insert editing from another VTR, set the Noise Filter/Edit Selector to "EDIT ON".

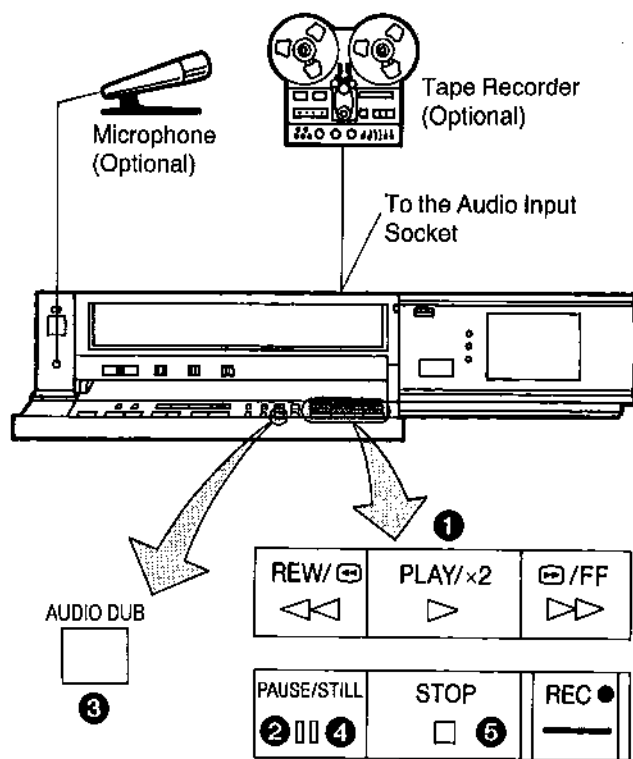
- 1 Press the Play/×2 Button.
- 2 Locate the tape position where you want the insert editing to end, and press the Pause/Still Button to put the VTR into the still playback mode.
- 3 Press the Reset Button to reset the Tape Counter to "0:00.00".

- 4 Press the Memory/Repeat/Search Button on the Remote Controller so that the Memory Indicator "M" mark will light up.
- 5 Perform review playback to a point the insert editing start point.
- 6 Press the Insert Editing Button.
(The Insert Editing Indicator lights up.)
To simultaneously insert new sound, press the Audio Dubbing Button.
(The Audio Dubbing Indicator will light up.)
- 7 After the picture to be inserted is prepared, press the Pause/Still Button (II).
(The insert editing will start.)
 - The insert editing will end at the point where the Tape Counter indicates "0:00.00", and the editing VTR will stop in the still playback mode.

- It is not necessary to operate the Tape Speed Selector.
- The picture quality of an inserted part is always somewhat inferior to that of the original.
- Avoid performing insert editing repeatedly on the same part of the tape because the picture quality of that part becomes inferior.
- Do not press the Memory/Repeat/Search Button during insert editing. If it is pressed, the Memory Indication "M" will disappear, and the insert editing will not end automatically at the preset editing end point.
- The inserted picture may contain slight colour noise or the colours may be unstable.
- If insert editing is performed on a tape recorded in the NTSC system, the insert editing function will not work correctly.

AUDIO DUBBING

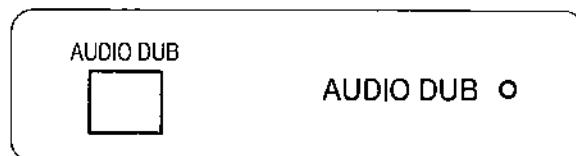
Note that the original sound will be completely erased during audio dubbing.



Preparation

- Insert a video cassette with the erasure prevention tab intact.
When a video cassette is already inside the VTR, press the VTR On/Off Switch to turn it on.
- Reset the Tape Counter to "0:00.00".
- Turn the TV set on and select the video playback channel.

- 1 Press the Play/x2 Button (▶) to locate the point where you want to start the audio dubbing.
- 2 Press the Pause/Still Button (||) at the exact point where you want to start the audio dubbing.
- 3 Press the Audio Dubbing Button (the indicator will light up).



- 4 Press the Pause/Still Button (||) once again to release the tape from pause, and at the same time start the operation of the audio source. The audio dubbing will start.
- 5 Press the Stop Button (■) to stop the audio dubbing.

- When a microphone is used for dubbing, do not place it near the speaker of your TV to prevent howling noise (acoustic feedback).
- If the erasure prevention tab of the cassette is missing, no audio dubbing can be made.
- If audio dubbing is performed on a tape recorded in the NTSC system, the audio dubbing function will not work correctly.

BEFORE REQUESTING SERVICE

Before requesting service, check the following points once again.

SYMPTOM	CAUSE	REMEDY
Power doesn't turn on.	Mains lead is not connected.	Connect mains lead to mains outlet.
	The Timer Record Function is set to "On".	Set the Timer Record Function to "Off".
Power is on but unit doesn't operate.	Safety devices are operating.	Turn off the VTR On/Off Switch, disconnect mains cord from outlet, then reconnect mains cord to mains outlet and turn on the VTR On/Off Switch again.
TV programmes cannot be recorded.	Connection of aerial lead is not correct.	Connect aerial lead correctly.
	Reception channel is not properly tuned.	Tune reception channel.
	Cables are connected to the Video Input and Audio Input Sockets.	Disconnect all cables from the Video Input and Audio Input Sockets.
OTR Function (One-Touch Timer Recording) cannot be performed.	Clock is flashing "0:00".	Set clock to present time.
Unattended timer recording cannot be performed.	Recording start or recording stop time setting is incorrect.	Set recording start and recording stop time correctly.
	The Timer Record Function is set to "Off".	Set the Timer Record Function to "On".
	Clock shows incorrect time.	Adjust clock to present time.
	Clock is flashing at "0:00".	Set clock time and perform timer setting.
If you attempt to carry out Recording, Timer Recording, or OTR, the cassette will be automatically ejected.	Accidental erasure prevention tab on the cassette is broken out.	Cover tab hole with adhesive tape.

SYMPTOM	CAUSE	REMEDY
Playback picture is not in colour. Playback picture has large amounts of "snow".	Reception channel was not adjusted correctly during recording.	Readjust reception channel correctly.
	TV set is not properly tuned to the video playback channel of the VTR.	Properly tune the TV set to the video playback channel of the VTR.
	The video heads are clogged with dirt.	Consult qualified service personnel.
	The video heads are abraded.	Consult qualified service personnel.
	Tape is old and/or defective.	Use new tape.
Remote Controller does not work.	Remote Controller is not being pointed at infra-red Receiver Window on the VTR.	Point the Remote Controller at Infra-red Receiver Window on the VTR.
	Distance is too far.	Use the Remote Controller within 7 m from the VTR.
	An obstacle is between Remote Controller and VTR.	Remove obstacle.
	Batteries are exhausted.	Replace batteries.
	Battery polarities (+, -) are reversed.	Insert batteries correctly.
Bar code reading with Remote Controller is impossible.	The Remote Controller is in the power-saving standby condition.	Press the Digital Scanner On/Off Button to "ON" again.
	The bar code has been traced too slowly.	Trace the bar code quickly.
	The bar code was not traced all the way from the Small Box past the last bar.	Trace the bar code correctly.
	The bar code was not traced straight.	Trace the bar code straight from left to right.
Transmission from the Remote Controller to the VTR cannot be performed.	The VTR is turned off.	Turn the VTR on.
	The VTR is in an operation mode.	Put the VTR into the stop mode.
	There is no unoccupied timer programme number left.	A maximum of 8 timer recordings can be programmed at the same time.
	Reading a bar code was not followed by a "beep" sound from the Remote Controller.	Perform the bar code reading again.
	The transmission was not followed by a repeated "beep" sound from the VTR.	Keep pressing the Transmit Button until the confirmation sound is heard.

SPECIFICATIONS

NV-L28B (U.K. model)

Information for Your Safety

Power Source:	240 V AC 50-60 Hz, U.K. model
Power Consumption:	Approx. 27 watts

Video Recording System:	2 rotary heads, helical scanning system
Video Heads:	4 heads
Tape Speed:	SP: 29.39 mm/sec LP: 11.7 mm/sec
Tape Format:	VHS tape
Record/Playback Time:	SP: 240 min. with NV-E240 LP: 480 min. with NV-E240
FF/REW Time:	Less than 5.5 min. with NV-E180

VIDEO

Television System:	CCIR, 625 lines, 50 fields, PAL colour signal
Modulation System:	Luminance: FM azimuth recording Colour signal: converted subcarrier phase shift recording
Input Level:	VIDEO IN (BNC) 1.0 Vp-p 75 ohm, unbalanced
Output Level:	AV 1.0 Vp-p 75 ohm, unbalanced AV 1.0 Vp-p 75 ohm, unbalanced RF Modulated: UHF channel 36 (± 4) 75 ohm, unbalanced

AUDIO

Input Level:	AUDIO IN (PHONO) -10 dB more than 50 kohm, unbalanced
	AV -10 dB more than 10 kohm, unbalanced
Output Level:	MICROPHONE: -70 dB
Audio Track:	AV: -6 dB less than 1 kohm, unbalanced
Video Horizontal Resolution:	1 track (Normal mono only)
Signal-to-Noise Ratio:	Colour: more than 240 lines (SP) Video: more than 43 dB (SP) Audio: more than 43 dB (SP)
Audio Frequency Response:	80 Hz-10 KHz (SP)
Operating Temperature:	5-40°C
Operating Humidity:	35%-80%
Weight:	5.8 kg
Dimensions:	380 (W) x 62 (H) x 456 (D) mm
Standard Accessories:	1 pc. DIN-DIN Coaxial Cable 1 pc. Remote Controller 4 pcs. "RG3" size batteries 1 pc. AC Main Lead 1 pc. Programming Sheet

Weight and dimensions shown are approximate.
Specifications are subject to change without notice.



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